State of Missouri

Regulatory Impact Report for Proposed Rule Amendment 10 CSR 20-7.031 Water Quality Standards

Missouri Department of Natural Resources
Water Protection and Soil Conservation Division
Water Protection Program

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Appendices

Basic Rule Information

Program/Division: Water Protection Program, Division of Water Protection and Soil Conservation

Rule Number: 10 CSR 20-7.031 **Rule Title:** Water Quality Standards

Type of rule: Proposed Amendment Revision

Submitted by: Clean Water Commission

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Introduction

This Regulatory Impact Report was written to comply with Chapter 640.015 RSMo and is a means to provide to the public and interested parties the information on rule development within the Department of Natural Resources. It is a summary of the information, discussion, input, and rationale used by the department in development of a draft rule. The goal of this Report is to ensure accountability, consistency, and transparency in the rulemaking process. Distribution of the Report will make this information readily available to a wide audience in a timely manner.

The Code of Federal Regulations at 40 CFR 131.20 requires a state to review its water quality standards at least once every 3 years. Missouri's Water Quality Standards (WQS) were last revised in 1996. On September 8, 2000, the United States Environmental Protection Agency (EPA) officially disapproved some revisions made to the WQS in 1994 and 1996 that were inconsistent with the Federal Clean Water Act (CWA or Act).

The department responded by providing a three-phase schedule that outlines the order that it will address changes requested by EPA as well as other issues. This proposed amendment is the first phase of this process. In 2001, the department held six stakeholder meetings to receive public input regarding potential changes to the WQS as a result of the triennial review process. A stakeholder group of environmentalists, agriculturists, scientists, permittee representatives, and other interested groups discussed the whole body contact recreational use issue during the autumn of 2003. Additional work groups will be developed to discuss issues in the next phases.

EPA may rectify these and other disapproved items by federal rulemaking if the state does not do so. In addition, the Missouri Coalition for the Environment has sued EPA to force the state, through EPA, to promptly comply with many of the items explained in EPA's September 8, 2000, letter.

Regulatory Impact Report

1. Does the rulemaking adopt rules from the US Environmental Protection Agency or rules from other applicable federal agencies without variance?

This rulemaking would establish new standards for waters of the state that are functionally equivalent to the Act. The Code of Federal Regulations at 40 CFR 131.20 requires a state to review its WQS at least once every 3 years. Missouri's WQS were last revised in 1996. On September 8, 2000, the United States Environmental Protection Agency (EPA) officially disapproved some revisions made to Missouri's WQS in 1994 and 1996 that were inconsistent with the Federal Clean Water Act (CWA or Act). This rulemaking is an effort to resolve these disapprovals and inconsistencies.

2. Report on peer-reviewed scientific data used to commence the rulemaking process.

A list of the technical documents and data used to develop the rule, as well as a statement on how this information was used is included as **Appendix A**. Because the majority of the proposed rule was drafted in accordance with EPA guidance, the reader may wish to contact EPA for any available records that explain the science and peer reviews used by EPA in developing their guidance.

The rule was also drafted according to Commission directives and public input. In 2001, the department held six stakeholder meetings to receive public input regarding potential changes to the WQS due to of the triennial review process (Table 1). Minutes from these meetings and a list of attendees are attached as Appendix B.

Table 1. Stakeholder Involvement Meeting Schedule, 2001

Date	Location	Time	Topics of Discussion
April 3, 2001	Jefferson City	1:30 – 4:00 p.m.	Aquatic Life Metals Criteria; Hardness Ranges
April 17, 2001	Columbia	1:30 – 4:00 p.m.	Drinking Water Metals; Dissolved Oxygen
May 1, 2001	Jefferson City	9:30 – 11:30 a.m.	Whole Body Contact Use; High Flow Exemptions
May 14, 2001	Jefferson City	1:00 – 4:00 p.m.	Channel Modification; Sand/Gravel Excavation Guidelines
June 5, 2001	Jefferson City	9:30 – 11:30 a.m.	Outstanding National Resource Waters; Wetlands Criteria; Mitigation Guidelines
June 19, 2001	Columbia	1:30 – 3:30 p.m.	Unresolved Issues

A stakeholder group of environmentalists, agriculturists, scientists, permittee representatives, and other interested groups discussed the whole body contact recreational (WBCR) use issue October 24 and November 4, 2003. Minutes from these meetings and a list of attendees are attached as Appendix C.

Meetings with the Clean Water Commission members, stakeholders, EPA, and department staff resulted in the draft changes to Missouri's WQS. Stakeholders involved in this process included individuals from community associations, environmental consultation firms, federal agencies, industrial groups, law firms, media groups, municipalities, environmental organizations, the public, and state agencies. A list of those individuals involved is included in the meeting minutes (Appendices B & C).

Listed below are other sources of information from the public, Commission members, department staff and EPA that helped to develop this rulemaking. This information consisted of letters, emails, phone conversations, meeting minutes, guidance documents, and other documents filed in the WQS file located within the Water Protection Program.

1. September 8, 2000, letter from U.S. Environmental Protection Agency (EPA) that approved and disapproved parts of Missouri's WQS.
2. MDNR response to EPA review of the Missouri's WQS.
3. April 3, 2001 to June 19, 2001 stakeholder meetings minutes.
4. October 24, 2003 and November 4, 2003 stakeholder meeting minutes.
5. WQS draft changes file folders (2), which contain several versions of the draft changes.
6. Rulemaking documents file folder, which contains memos and letter associated with the rulemaking process of internal review and formal submittal.
7. EPA correspondence file folder, which contains emails and letters of correspondence between the department and EPA.
8. Missouri Coalition for the Environment Sunshine Request file folder, which contains the formal Sunshine Request and related document locations.
9. Sierra Club Petition to EPA file folder, which contains the formal petition and documents associated with it.
10. Missouri Coalition for the Environment Intent to Sue and Lawsuit file folder, contain the intent to sue, formal lawsuit, and related documents explaining the lawsuit.
11. Lawsuit Documents file folder, which contains the original department copy of documents used as part of the lawsuit's exhibit of evidence.
12. WQS Presentations file folder, which contains copies of notes and PowerPoint presentations used to explain the draft changes to the WQS.
13. Meetings pertaining to WQS file folder, which contains notes of department and public meetings related to the WQS.
14. WQS Stakeholder Address List file folder, which contains a list of individuals contacted in 2001 and 2003 to be part of the stakeholder process and others who wish to be notified of upcoming meetings and/or information dissemination.
15. Table A—Water Quality Criteria file folder, which contains the reason and documentation for the draft changes to the chemicals listed in Table A brought up by the department, CWC, other agencies, public, and EPA.
16. Table B—Ammonia file folder, which contains comparison of the criteria used in neighboring states, discussion of rulemaking language, and the recommended criteria from EPA.

17. *Ambient Water Quality Criteria for Ammonia—1984*, EPA 440/5-85-001, January 1985, which is an extra copy of the currently adopted ammonia water quality criteria to keep with the WQS files.
18. *1999 Update of Ambient Water Quality Criteria for Ammonia*, EPA 822-R-99-014, December 1999, which is an extra copy of the newly recommended ammonia water quality criteria to keep with the WQS files.
19. Table C—Cold Water Fisheries file folder, which contains the reason and documentation for the draft changes brought up by the department, CWC, other agencies, public, and EPA.
20. Table E—Outstanding State Resource Waters file folder, which contains the reason and documentation for the draft changes brought up by the department, CWC, other agencies, and public.
21. Table G—Lake Classifications and Use Designations file folder, which contains the reason and documentation for the draft changes brought up by the department, CWC, other agencies, public, and EPA.
22. Table H—Stream Classification and Use Designations file folder, which contains the reason and documentation for the draft changes brought up by the department, CWC, other agencies, public, and EPA.
23. Table I—Biocriteria Reference Locations file folder, which contains the reason and documentation for the draft changes brought up by the department.
24. Outstanding National Resource Waters file folder, which contains several versions of and information related to the draft rulemaking language.
25. Metals: drinking water supply file folder, which contains information related to the criteria change and cost.
26. Metals: protection of aquatic life file folder, which contains the recalculation worksheet, draft criteria equation and table, and correspondence with individuals about the subject.
27. Recreational Use Designation file folder, which contains several versions of potential rulemaking language, correspondence discussing draft changes, and other information related to the draft designation of WBCR.
28. Bacteria (*E. coli*) file folder, which contains reference material, discussion of potential revisions, and several versions of draft rulemaking language.
29. *Ambient Water Quality Criteria for Bacteria—1986*, EPA 440/5-84-002, January 1986, which is an extra copy of the recommended bacteria water quality criterion to keep with the Bacteria (*E. coli*) file folder.
30. Wetlands file folder, which contains several versions of draft rulemaking language, discussion of potential changes, and reference material.
31. Site-specific criteria file folder, which contains several versions of draft rulemaking language, comparisons of neighboring states' language, and reference material.
32. Chapter 3 and Appendix L *Water Quality Standards Handbook: Second Edition* that explains a methodology for conducting a site-specific criteria study.
33. High Flow Exemption file folder, which contains several versions of draft rulemaking language, discussion of potential changes, and reference material.
34. Fiscal Note file folder, which contains reference material and calculations of potential cost due to WQS and Effluent Regulations rulemaking.

35. *Implementation Guidance for Ambient Water Quality Criteria for Bacteria*, EPA 823-B-02-003, May 2002 Draft, which explains the current implementation of the 1986 bacteria criteria and is located in the library/reference bookshelf for WQS.
36. *Water Quality Standards Handbook: Second Edition*, EPA 823-B-94-005a & EPA 823-B94-005b, August 1994, which explains many aspects of the WQS as well as contains procedures for implementing the WQS.

3. Description of persons who will most likely be affected by the proposed rule, including persons that will bear the costs of the proposed rule and persons that will benefit from the proposed rule.

Proponents include Sierra Club and Missouri Coalition for the Environment, although each has indicated other changes they would like to see that are different from the proposed rulemaking. Some of those issues MDNR may try to address in subsequent revisions to the WQS.

The regulated community is distributed evenly across the state, includes diverse types and sizes, and may express some concern regarding the proposed rule where it requires additional treatment or imposes other associated expenses.

All permitted facilities that currently test drinking water supplies for metals using the dissolved method will likely spend slightly less on the total recoverable analytical method. Permitting in Outstanding Resource Waters would not be significantly changed by the proposed rule, as allowed discharges are presently required to conduct advanced treatment. Changing the indicator bacteria from fecal coliform to *E. coli* could potentially cost more due to the initial equipment if facilities test for their own bacteria levels. Beyond the preliminary set up expenses, the actual bacteria tests cost about the same. The level of treatment for bacteria would not greatly change. However, designating WBCR use to all waters listed in Tables G and H would likely require a large number of permitted facilities to begin monitoring for bacteria and disinfecting, a costly endeavor, unless a Use Attainability Analysis (UAA) is conducted to show that WBCR is non-existing and unattainable.

An estimate of the number of facilities potentially impacted by this proposed rule can be found in Tables 3 and 5 through 9 of this document.

4. Description of the environmental and economic costs and benefits of the proposed rule.

Environmental Benefits: This rule amendment would increase the protection of aquatic life and drinking water supplies from the effects of metal toxicity. Outstanding Resource Waters receive greater protection from degradation of water quality. Specific criteria development for wetlands has been clarified. All waters of the state will benefit from the development of the antidegradation policy implementation. The chemical and biological integrity of Class C streams and streams with a 7Q10 of 0.1 cfs or less shall be protected more by the removal of the mixing zone allowance. Some permitted facilities could also receive regulatory relief by requesting site-specific criteria. Below is a more detailed description on the changes to be made to the WQS through this rulemaking.

The addition of seven definitions (catastrophic storm event, early life stages, 30-day Q10, 1-day Q10, reference lakes or reservoirs, water effect ratio, and waters of the state) will

better clarify the WQS. Language has been added to also clarify existing definitions (WBCR and low-flow conditions).

Missouri currently has an approved antidegradation policy but does not have an antidegradation implementation procedure. Language is included in the proposed amendment that provides for the development and use of antidegradation implementation procedures.

Language referencing modification of WQS for site-specific criteria can be found in Missouri's dissolved oxygen criteria, Tables A and B criteria, and sulfate and chloride criteria. Although federal guidance allows site-specific adjustment of water quality criteria, EPA disapproved part of the language describing the application of site-specific criteria to waters with natural concentrations of dissolved oxygen below criteria. In response, the site-specific criteria language in each of the listed paragraphs above will be removed and a new subsection added. The new subsection will describe the site-specific criteria development methods for all aquatic life WQS.

Allowing mixing zones of any size in intermittent or ephemeral (Class C) streams or streams with a seven (7)-day Q_{10} of 0.1 cfs or less might not protect the aquatic life communities under all hydrological circumstances. Therefore, the department is proposing removal of the allowance for mixing zones in Class C streams and streams with seven (7)-day Q_{10} low flows of 0.1 cfs or less.

Language was added to 10 CSR 20-7.031(4) that reflects a more detailed method for how wetlands could be assigned specific water quality criteria.

Missouri currently uses the dissolved metal analytical method, which differs from federal criteria, for the protection of surface waters serving as drinking water supplies. Therefore, all metals attached to the drinking water supply designated use shall be analyzed using the total recoverable method, except for silver, zinc, iron and manganese, which are secondary standards under the Safe Drinking Water Act and shall remain as dissolved.

Metal criteria for aquatic life protection were recalculated using the most recent toxicity data sets and included the genus Ceriodaphnia. The metals affected by this recalculation include cadmium, trivalent chromium (Cr^{+3}), hexavalent chromium (Cr^{+6}), copper, lead, nickel, silver, and zinc. The results of these criteria recalculations are equation based and, with the exception of hexavalent chromium, are hardness dependent. Also, the values in the table will be revised and based on the lowest (most protective) hardness value.

New total ammonia nitrogen criteria for the protection of aquatic life was published in December 1999. Advances in research methods and increases in funding have allowed toxicologists to more accurately assess the toxicity of ammonia to aquatic life. The new ammonia criteria will be adopted to reflect improvements to the current (1984) criteria.

Missouri has been encouraged to adopt *EPA's Ambient Water Quality Criteria for Bacteria—1986* for WBCR. Therefore, *E. coli* will be adopted as the indicator bacteria and the 1986 criteria will apply for water bodies with WBCR designations.

Missouri currently allows exceedance of bacteria limits during periods of storm water runoff (high flow exemption). As currently written, the high flow exemption might not ensure that WBCR is adequately protected. Also of concern, the high flow exemption is broad and qualitative. Therefore, the high flow exemption will be revised to quantify a limit as to when the exemption applies.

It has been stated that a couple of Missouri's WQS are inconsistent and/or conflict with the Antidegredation Policy. Maintaining consistency with Tier III in 10 CSR 20-7.031(2)(C), all discharges into Outstanding National Resource Waters (ONRWs) and Outstanding State Resource Waters (OSRWs) or into their watershed must be subject to special effluent limitations as required in 10 CSR 20-7.015(6).

Several parameters in 10 CSR 20-7.031 Table A—Criteria for Designated Uses are currently inconsistent with federal criteria. The human health protection—fish consumption criteria affected include 2,4,6-trichlorophenol; n-nitrosopyrrolidene; 4-4'-DDE; 4-4'-DDD; and chloroform. The drinking water supply criteria affected include 2,3,7,8-TCDD (dioxin); trihalomethanes; dichlorobromomethane; methylene chloride. The criteria affected for the protection of both human health—fish consumption and drinking water supply include 1,2,4,5-tetrachlorobenzene; pentachlorobenzene; 4-4'-DDT; bis (chloromethyl) ether; bromoform; chlorodibromomethane; tetrachloroethylene; and 1,2-dichloropropane. All of the above criteria were changed to match federal criteria.

During review of 10 CSR 20-7.031, Table C—Water Bodies Designated for Cold-Water Fisheries, six waters designated for cold water fisheries had reduced mileage or were removed during past revisions without adequate explanation. These waters have been restored to Table C and include the addition of Bull Shoals Lake (Ozark county) and Indian Creek (Franklin/Washington counties) and corrections to Little Piney Creek (Phelps county), North Fork White River (Ozark county), South Indian Creek (Newton/McDonald county), and Spring Creek (Douglas/Ozark county).

During the June 18, 2003 meeting, the Missouri Clean Water Commission directed staff to propose Bull Creek for Outstanding State Resource Water status. Bull Creek will be added for the mileage located within the Mark Twain National Forest in Christian County. This change would increase the level of protection to Bull Creek by eliminating the option that new dischargers could lower the water quality if they demonstrated a socio-economic need that surpassed the environmental benefit from maintaining present water quality.

Section 101(a)(2) of the CWA establishes as a national goal "water quality which provides for the protection and propagation of fish, shellfish, and wildlife and … recreation in and on the water," wherever attainable. This national goal is commonly referred to as the "fishable/swimmable" goal. Missouri currently lists all classified waters for aquatic life, but selectively lists water bodies for WBCR. Therefore, all waters listed in 10 CSR 20-7.031 Tables G and H will be immediately designated and protected for WBCR.

Several changes were made to 10 CSR 20-7.031, Table I—Biocriteria Reference Locations due to water withdrawal for irrigation, accessibility limitations, and refinement of selection processes.

Environmental Costs: Some of the changes proposed will cause slight upward adjustments in WQS. However, these adjustments are considered minor and will not result in any measurable increase in pollutant levels in waters of the state. The environmental costs from inaction are substantial. These costs are briefly explained in Section 6 of this report.

Economic Benefits: Some operational efficiencies may result from the clarifications presented by this proposed rule. The proposed rule does lessen the standards in a few cases where new science has shown that less stringent standards are sufficiently protective.

Economic Costs: This proposed amendment is being written in conjunction with proposed changes to 10 CSR 20-7.015, Effluent Regulations. Because these rules would be administered jointly, the department has determined potential costs as an aggregate for both rulemakings. The rulemakings together will cost private and public entities (permitted facilities) an estimated three hundred four million, eight hundred sixty-six thousand dollars ($304,866,000) in the aggregate. The cost and figures are included in the documentation for both rules, though the cost will only be incurred once. Since the Effluent Regulations are tied so closely to the WQS, the cost cannot be distinguished as part of one rule or the other. Therefore, the basis for the cost estimation and assumptions are also described in the Regulatory Impact Background Information for Effluent Regulations and fiscal notes for both the WQS and Effluent Regulations. The basis for the cost estimation and assumptions are described below.

<u>Table G—Lake Classification and Use Designation and Table H—Stream Classification and Use Designations</u>

The current number of wastewater treatment plants (WWTPs or facilities) without bacteria monitoring that would be affected by this rule were taken from the Water Quality Information System database (WQIS). All cost estimates have been adjusted to reflect the cost of equipment, installation, and operation and maintenance for the year 2004 using the Engineering News Record Construction Cost Index (CCI). The use of either chlorination or an ultraviolet disinfection system was determined according to the size of a facility's design flow in million gallons per day (MGD).

The tables below show the estimated cost per facility for each of the four size ranges and two types of disinfection systems. Table 1 displays installation costs, Table 2 the operation and maintenance (O & M) costs, and Table 3 the number of facilities in each category of flow and type of disinfection system.

Table 1. Total Installation Cost for All Facilities.

Flow (MGD)	Public		Private		Total
	Chlorination	UV	Chlorination	UV	
Flow less than 0.05 MGD	$1,425,000	$2,118,163	$4,000,000	$8,472,650	$16,015,813
Flow between 0.05 & 1.0 MGD	$2,817,500	$9,222,098	$301,875	$731,913	$13,073,385
Flow between 1.0 & 20.0 MGD	$13,362,368	$38,880,000	$4,454,123	$2,430,000	$59,126,490
Flow greater than 20.0 MGD	$0	$162,540,009	$0	$0	$162,540,009
Total	$17,604,868	$212,760,269	$8,755,998	$11,634,563	$250,755,696

Table 2. Operating & Maintenance Cost per Year for All Facilities.

Flow (MGD)	Public		Private		Total
	Chlorination	UV	Chlorination	UV	
Flow less than 0.05 MGD	$3,135,000	$89,688	$8,800,000	$358,750	$12,383,438
Flow between 0.05 & 1.0 MGD	$23,244,725	$390,285	$2,490,506	$30,975	$26,156,491
Flow between 1.0 & 20.0 MGD	$1,020,150	$2,623,520	$340,050	$163,970	$4,147,690
Flow greater than 20.0 MGD	$0	$10,967,793	$0	$0	$10,967,793
Total	$27,399,875	$14,071,285	$11,630,556	$553,695	$53,655,411

Table 3. Facility Numbers.

Flow (MGD)	Public		Private		Total
	Chlorination	UV	Chlorination	UV	
Flow less than 0.05 MGD	114	41	320	164	639
Flow between 0.05 & 1.0 MGD	140	63	15	5	223
Flow between 1.0 & 20.0 MGD	6	32	2	2	42
Flow greater than 20.0 MGD	0	7	0	0	7
Total	260	143	337	171	911

Analytical bacteria testing costs were estimated by averaging the cost of fecal coliform and total residual chlorine testing from ten (10) laboratories in Missouri and neighboring states that service Missouri facilities. The number of samples per year per facility was derived from the monitoring frequency requirement of the current permit for each facility and tracked in WQIS. Table 4 shows the cost of analytical testing of fecal coliform (FC) and total residual chlorine (TRC) facility type and size.

Table 4. Average Analytical Testing Cost per Year.

Flow (MGD)	Public		Private		Total
	TRC	FC	TRC	FC	
Flow less than 0.05 MGD	$18,904	$36,802	$39,491	$95,066	$190,263
Flow between 0.05 & 1.0 MGD	$29,006	$78,989	$1,350	$9,847	$119,192
Flow between 1.0 & 20.0 MGD	$9,952	$78,329	$217	$10,296	$98,794
Flow greater than 20.0 MGD	$0	$46,042	$0	$0	$46,042
Total	$57,862	$240,161	$41,058	$115,210	$454,290

These calculations assume all wastewater facilities not currently disinfecting, and located within two (2) miles of a classified water body, will disinfect. In addition, it was assumed that those facilities currently monitoring bacteria levels are in fact disinfecting. The department is proposing an implementation schedule for permitted facilities to comply with the new rules. Such a schedule will allow impacted facilities time to: 1) install necessary equipment, 2) conduct a scientific study to determine if disinfection is required to protect WBCR, or 3) conduct a UAA to determine if a water body does not support WBCR. These calculations do not take into account the cost to future facilities that do not presently have an operating permit. Additionally, the cost estimate calculations assume that most mechanical wastewater treatment plants will use ultraviolet disinfection while lagoon systems will use chlorination.

The frequency for analytical testing of facilities is specific to each permit that would be affected by the whole body contact designation. It is assumed that facilities of similar size and type will most likely require similar monitoring frequency.

This rule may add extra implementation costs beyond what is already required by the department or other agencies that currently carry out the WQS. For example, a slight change in a water quality criterion would not affect the process of calculating a water quality based effluent limit, but would require a recalculation, which in turn takes time. Additionally, when requests for use re-designation are received, significant amounts of staff time and department resources could be needed to conduct surveys and/or review of data submitted. The estimated cost to the department is explained in Section 5 of this report.

Effect on Small Business: Small business affected by this rulemaking would include for-profit wastewater treatment facilities with less than fifty (50) full- or part-time employees. The data the department used to determine the number of small businesses impacted by this rulemaking mainly consisted of the type of wastewater treatment plant (WWTP). If the WWTP was a publicly owned treatment works (POTW) or categorized as a municipal plant under the department's fee assessment, then it was assumed those facilities were not-for-profit. All others, generally non-municipals, were considered for-profit and used in this calculation. Due to this categorization, some churches, schools, and sewer districts were included as for-profit, which may or may not be accurate. Therefore, this calculation may over-estimate the impact to small businesses.

The primary change to affect small businesses is the designation of WBCR for waters classified in Tables G and H of the WQS. These costs are also included in the fiscal note for both private and public entities. The same assumptions used in the fiscal note calculation apply to this calculation. The number of small businesses assessed to be impacted by this rulemaking can be found in Table 5.
The total installation cost for facilities is in Table 6, while the annual operating and maintenance costs is in Table 7.

Table 5. Affected Small Business Facility Numbers

Flow (MGD)	Disinfection System		Total
	UV	Chlorination	
Flow less than 0.05 MGD	164	317	481
Flow between 0.05 & 1.0 MGD	5	15	20
Flow between 1.0 & 20.0 MGD	1	2	3
Flow greater than 20.0 MGD	0	0	0
Total	170	334	504

Table 6. Total Installation Cost for First Year

Flow (MGD)	Disinfection System		Total
	UV	Chlorination	
Flow less than 0.05 MGD	$8,472,650	$3,962,500	$12,435,150
Flow between 0.05 & 1.0 MGD	$731,913	$301,875	$1,033,788
Flow between 1.0 & 20.0 MGD	$1,215,000	$4,454,123	$5,669,123
Total	$10,419,563	$8,718,498	$19,138,060

Table 7. Total O & M Cost per Year

Flow (MGD)	Disinfection System		Total
	UV	Chlorination	
Flow less than 0.05 MGD	$358,750	$8,717,500	$9,076,250
Flow between 0.05 & 1.0 MGD	$30,975	$2,490,506	$2,521,481
Flow between 1.0 & 20.0 MGD	$81,985	$340,050	$422,035
Total	$471,710	$11,548,056	$12,019,766

Small businesses, along with other stakeholders, were provided an opportunity to participate in meetings held in 2001 and 2003 on several issues related to changes in the WQS. All stakeholders will be asked to provide comments during the public comment period and public hearing after the proposed rule is published in the *Missouri Register*.

The department has considered different levels of implementation for small businesses, but none were taken. Due to the nature of this rule, the implementation levels are either not practical or consistent with statute. This rule adopts comparable federal standards for several criteria, such as *E. coli* and total ammonia nitrogen.

5. Probable costs to the agency and to any other agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenue.

The impact on state revenue is the same for both this proposed amendment and the proposed amendment to 10 CSR 20-7.015, Effluent Regulations. The cost and figures are included in the documentation for both rules, although the cost will only be incurred once. (See explanation in Section 4 of this report.)

Revisions to the WQS may potentially cost the state two hundred thirty-five thousand five hundred dollars ($235,500) annually with an additional first year cost of eighteen thousand three hundred fifty dollars ($18,350) for equipment. These costs would be the result of conducting UAAs associated with the designation of all classified waters in Tables G and H in the WQS for WBCR. Tables 8 and 9 break down the potential cost to the department for conducting UAAs.

Table 8. Initial Costs due to Recreational UAAs

Resource	Unit(s)	Cost per Unit	Total Cost
Digital cameras	3	$252	$756
GPS units	3	$5,212	$15,636
GPS software	1	$1,955	$1,955
Total			$18,347

Table 9. Annual Costs due to Recreational UAAs

Resource	Unit(s)	Cost per Unit	Total Cost
Full-time employee (FTE)	3	$35,050.80	$105,152.40
Interns/part-time employees	4	$12,000.00	$48,000.00
Vehicle mileage	45,000	$0.33	$14,850.00
Lodging (excludes taxes)	$420	$73.80	$30,996.00
Food expense	$630	$39.80	$25,074.00
Internal review committee members	3	$3,791.25	$11,373.75
Total			$235,446.15

The staff and associated resources for the cost calculation in the table above were based on the UAA program conducted by Kansas Department of Health and Environment (KDHE). Several assumptions were made and are explained below.

Several resources are presently accessed or owned by the department. These include mapping programs to determine survey sites, highway maps to determine the best route, computers, copy machines, one digital camera, two handheld global positioning system (GPS) units, and vehicles to use in the field.

The department would need to acquire or develop the following in order to conduct recreational UAAs. Currently the KDHE staff consists of three full-time employees and three part-time employees for the stream UAA program and the use of two department staff part-time for the lake UAA program. The staff time for the lake program was estimated as a total of 0.5 FTE, since lake UAAs consume less time than stream UAAs and the number of lakes are small. The full time employees (FTEs) itemized in the calculation will be responsible for doing preparatory work, field surveys, data entry, and report writing. The UAA information will be used in the potential revision of the WQS and submitted to USEPA.

The estimated salary for an FTE was calculated from the average of the salary range for each of the environmental specialist I, II, and III categories. With the recreational season

lasting from April 1 to October 31 of each year, part-time salaries were computed based on an average of thirty (30) weeks at forty (40) hours per week and a pay rate of $10 per hour.

The cost estimate included three additional digital cameras and two additional GPS units with corresponding software.

Locational data could be added to the existing Water Quality Information System (WQIS), but not all the data collected due to a UAA could be added to this database. Another database or organizational tool will be needed to collect all data (pictures, descriptions, analyses, etc.). This would be included in the FTEs' duties. Therefore, no additional cost for database creation or management will be needed.

Travel expenses include over-night stays, meals, and vehicle mileage. Under the assumption that three days per week are spent in the field, two nights of lodging are needed each week. The cost of lodging and meals were figured using the average of each region within Missouri at the maximum per diem rate. Vehicle usage was assessed as mileage with an average of 125 miles per day based on the area of the state and the average state rate of thirty-three cents per mile.

An internal review committee and quality assurance/quality control (QA/QC) program would need to be developed in order to insure consistency in re-designation of recreational uses. Based on the number of UAAs completed by Kansas during 2001 and 2002, an estimated five water bodies could be investigated per day. The review committee is assumed to consist of three department staff spending an average of one-half hour per UAA. The QA/QC program would be included in the field staff's time.

A rulemaking effort would be needed to remove WBCR as a designated use from a water body following a UAA that demonstrated the use couldn't be attained. At this time that cost or number of potential rulemakings as a result of re-designation cannot be predicted.

Additional impacts on the state's revenue may be the potential listing of additional waters on the 303(d) list, which results in Total Maximum Daily Loads (TMDLs), due to WBCR designation. These costs cannot be measured at this time since the number of waters potentially falling into this category is unknown.

6. Comparison of the probable costs and benefits of the proposed rule to the probable costs and benefits of inaction, which includes both economic and environmental costs and benefits.

One of this state's greatest natural resources is its abundant water. The WQS are designed to protect that resource. If this rulemaking does not become effective, some of those resources will not be protected to the extent required by federal law. In addition, public health might be affected due to the need for revised water quality criteria for adequate protection of aquatic life (fish consumption), recreational uses, and drinking water supplies. Many of these impacts are immeasurable in terms of costs simply

because the exact effects from lack of action is incalculable. What price is good health worth? While the potential economic cost explained in Section 4 of this report is certainly significant, no comparison can be made to environmental benefits without associating a cost to lowered health of citizens and the diminished resources that this rulemaking is intended to prevent.

The state of the economy depends to some extent on the state of the environment. For example, an area that can advertise good water quality is attractive to many human activities, from tourism to industry.

7. Determination of whether there are less costly or less intrusive methods for achieving the proposed rule.

Regional organizations, county governments, or municipal governments could enact laws or policies that provide similar or greater protection of water resources within their jurisdiction. This has been done in a few select areas of the state, but it does not provide adequate protection for the entire state population and resources.

8. Description of any alternative method for achieving the purpose of the proposed rule that were seriously considered by the department and the reasons why they were rejected in favor of the proposed rule.

For most of the proposed rules, EPA requires a regulatory program to ensure the effective administration of clean water standards. No other state agency has the authority or funding source to administer such a program. EPA has delegated its authority only to the department for administering a water quality program and that delegation hinges on the program being functionally equivalent to the federal Clean Water Act.

Because the EPA guidelines offer the only current rationale for the selection of the proposed standards, the department defers to EPA's rationale for the science used in developing the standards. In order to establish standards other than those contained in EPA's guidelines, the state would need to provide rationale that is equally pervasive. That effort would take years and enormous resources, and would not likely lead to standards any different then that developed by EPA.

9. Analysis of both short-term and long-term consequences of the proposed rule.

The following paragraphs explain the portions of the WQS that would be affected by the rulemaking and the likely consequences of each revision.

<u>Definitions</u>
Several language additions to the regulation have not been previously defined. Also, two definitions are present in 10 CSR 20-2 and have been added to the WQS [10 CSR 20-7.031(1)] for easier reference. The addition of these definitions does not implement any changes to the regulation. Therefore, the short- and long-term consequences of this proposed change to the rule is that they create an easier and more direct reference to the

definitions applicable to this rule. These definitions should increase the consistency in how the terms are used in implementing the rule.

"Division of Geology and Land Survey" changes to "Geological Survey and Resource Assessment Division"
In 2001, the Missouri Department of Natural Resources Division of Geology and Land Survey was officially renamed the Geological Survey and Resource Assessment Division. The services, requirements, and responsibilities of the division with regards to the stream assessment sections in the WQS will not be changing in any way. This change can be found at 10 CSR 20-7.031(1)*[(L)]***(N)**. Therefore, the short and long term consequence of this proposed change to the rule is that it ensures an accurate reference to another departmental division which recently changed its name and therefore decreases the likelihood of a misunderstanding of the departmental organizational structure.

Antidegradation implementation procedures
The antidegradation policy currently exists in the WQS in section (2) and the language will not be revised. Language has been added to section (2) to state that the department will develop a document for the antidegradation implementation procedures [10 CSR 20-7.031(2)**(D)**]. This procedure will be developed through the stakeholder process and be available to both the public and staff. Therefore, the short- and long-term consequence of this proposed change to the rule is that it will encourage the department to further clarify the rule on antidegradation. Further clarification will promote a more consistent understanding and implementation of the policy

Site-specific criteria for the Protection of Aquatic Life
Currently the WQS have three locations describing site-specific criteria methods for individual criteria. They are found in the dissolved oxygen criteria [10 CSR 20-7.031(4)(A)3.], in the toxic substances criteria [10 CSR 20-7.031(4)(B)1.], and in the sulfate and chloride criteria [10 CSR 20-7.031(4)(L)3.]. This language has been deleted and a new subsection [10 CSR 20-7.031(4)(**R**)] has been added to further explain the method of developing site-specific criteria for the protection of aquatic life for all water quality criteria. Therefore, the short- and long-term consequence of this proposed change to the rule is that it will provide a clearer understanding of the specific steps necessary to establish alternative WQS where conditions are unique. The development of alternative standards can offer relief from standards that are unnecessarily burdensome or can offer standards that better reflect, and therefore better protect, a water's specific biological, chemical or physical characteristics.

Specific criteria methods for wetlands
Wetlands represent a unique group of water bodies in Missouri. There are several types of wetlands making the development of specific numeric criteria for all wetlands difficult. Language has been added to further expand the procedure by which a specific wetland or wetland type could be assigned specific criteria for the protection of its designated uses [10 CSR 20-7.031(4)(A)*[6.]***5.**]. Therefore, the short and long term consequence of this proposed change to the rule is that it will provide a clearer understanding of the specific steps necessary to establish alternative water quality

standards for wetlands. The development of alternative standards specific to wetlands can offer relief from standards that are unnecessarily burdensome or can offer standards that better reflect, and therefore better protect, a wetland's specific biological, chemical or physical characteristics.

Analytical method for drinking water supply metals

The present WQS [10 CSR 20-7.031(4)(B)2.B.] require metals for the protection of drinking water supplies to be analyzed by using the dissolved method. The maximum contaminant levels (MCLs) for metals under the Safe Drinking Water Act (SDWA) are analyzed as total recoverable. Therefore, since the drinking water criteria in the WQS are derived from the SDWA, the analytical method for metals based on MCLs are proposed to be changed to total recoverable. Those methods based on secondary drinking water regulations will remain as dissolved. The total recoverable method consists of one less step in the sampling technique (sample filtration), making the cost of total recoverable testing less, though not significantly, than the dissolved method. Currently the majority of facilities are reporting metals concentrations as total recoverable due to federal requirements [40 CFR 122.45(c)]. The total recoverable effluent limits are translated from the dissolved water quality criteria.

An increase in treatment cost could occur depending on the quality of the effluent discharged and level of treatment presently employed at each individual facility. The level of treatment at each facility ranges from minimal to advanced treatment. Information on each situation is insufficient to calculate how much alteration of treatment would be needed. Municipal wastewater treatment plants that receive industrial discharge have pretreatment programs to aid in metals treatment. Municipal entities typically do not have the technology to treat for metals. Some pretreatment programs may have extra capacity for stricter limits since a percentage of their pollutant load may have been reserved for future growth during the original design of the facility. The number of significant industrial users (SIGs) indirectly affected by the pretreatment program is unknown. However, the number of facilities that currently monitor for each drinking water supply metal can be found in Table 10. A total of 79 facilities monitor and report one or more of the drinking water supply metals.

Table 10. Number of Facilities Monitoring for Metals: DWS

Parameter	Public Facilities	Private Facilities	Total
Antimony	2	21	23
Arsenic	19	28	47
Barium	2	24	26
Beryllium	0	22	22
Cadmium	22	30	52
Chromium	28	30	58
Copper	29	41	70
Iron	6	34	40
Lead	27	37	64
Manganese	1	24	25
Mercury	21	26	47
Nickel	22	31	53
Selenium	2	25	27
Silver	15	23	38
Thallium	1	19	20
Zinc	27	37	64

Metals criteria for aquatic life protection

Criteria for the following metals [10 CSR 20-7.031 Table A] were recalculated using the most recent toxicity data sets that included genus Ceriodaphnia: cadmium, trivalent chromium [Cr(III)], hexavalent chromium [Cr(VI)], copper, lead, nickel, silver, and zinc. The results of these criteria recalculations are equation based and, with the exception of hexavalent chromium, are dependent on the hardness of the receiving water. A table of criteria calculated using the minimum hardness value of a range would be provided as a guide. These revised criteria may be stricter or less strict depending on the type of water body receiving each individual discharge, though most will be stricter. Currently the majority of facilities are reporting metals concentrations as total recoverable due to federal requirements [40 CFR 122.45(c)]. The total recoverable effluent limits are translated from the dissolved water quality criteria.

The extent or number of required upgrades in treatment required by this proposed change in the rule will vary on a case-by-case basis depending on the level of treatment presently employed at each facility. The level of treatment at each facility ranges from minimal to advanced. Information on each situation is insufficient to calculate how much alteration of treatment would be needed. Furthermore, a facility could conduct additional effluent and stream sampling to obtain a more specific metal translator (rather than a default translator) to be used in converting the dissolved water quality criterion into a total recoverable effluent limit. Municipal wastewater treatment plants that receive industrial discharge have pretreatment programs to aid in metals treatment. Municipal entities typically do not have the technology to treat for metals. Some pretreatment programs may have extra capacity for stricter limits since a percentage of their pollutant load may

have been reserved for future growth during the original design of the facility. The number of significant industrial users (SIGs) indirectly affected by the pretreatment program is unknown. However, the number of facilities that currently monitor for each metal for the protection of aquatic life can be found in Table 11. A total of 246 facilities monitor and report one or more of these metals.

Table 11. Number of Facilities Monitoring for Metals: AQL

Parameter	Public Facilities	Private Facilities	Total
Cadmium	64	104	168
Chromium	75	98	173
Copper	86	155	241
Lead	74	92	166
Nickel	59	77	136
Silver	41	72	113
Zinc	78	141	219

Mixing zones in Class C streams and streams with a seven (7)-day Q_{10} of 0.1 cfs or less

Mixing zones in Class C streams and classified streams with a seven (7)-day Q_{10} of 0.1 cubic feet per second (cfs) or less [10 CSR 20-7.031(4)(A)*[5.]***4.**] do not have adequate mixing to protect the stream under all hydrologic conditions. The retraction of the allowance for these types of mixing zones may result in a recalculation of water quality based effluent limits, which most likely will become more stringent. Based on the results of the recalculation and depending on the type of treatment and discharge, changes in treatment may be necessary to sufficiently protect the receiving stream. The number of facilities that currently discharge to a Class C stream or a classified stream with a seven (7)-day Q_{10} of 0.1 cfs or less can be found in Table 12.

Table 12. Number of Facilities Potentially Affected by Retraction of Mixing Zone

Stream Type	Public Facilities	Private Facilities	Total
Class C	116	360	476
7Q10 of 0.1 cfs or less	3	0	3

E. coli and 1986 criteria

Following additional research and data collection, new bacterial indicators were developed and published in 1986 by EPA. In a document titled "Ambient Water Quality Criteria for Bacteria—1986," *E. coli* was found to be a better indicator of illness in swimmers of freshwater systems than fecal coliform. Hence, a new criterion was developed to accompany the new indicator bacteria. As time progressed, more states have adopted the new indicator bacteria and criterion. Missouri is currently at the point of adoption [10 CSR 20-7.031(4)(C) and Table A]. By adopting the new indicator bacteria, the level of protection for water recreation will be better understood and therefore better managed. Simultaneously, the wastewater treatment to meet the new criterion will not need to change because of the new criteria.

High flow exemption

Missouri at this time allows exceedance of bacteria limits in waters designed for WBCR during periods of storm water runoff (high flow exemption). As currently written, the high flow exemption might not ensure that the WBCR use is adequately protected. The current language [10 CSR 20-7.031(4)(C)] allows for broad interpretation and implementation. Therefore, the high flow exemption will be quantified and applicable when a water body is affected by storm water runoff associated with a catastrophic storm event (25-year, 24-hour storm event). This revision clarifies the period of time when the exemption will be allowed. Therefore, the short- and long-term consequence of this proposed change to the rule is that it will provide a clearer understanding of the specific circumstances during which compliance with bacterial standards will not be achievable nor necessary. This clarification will allow facilities to plan accordingly.

Table A—Criteria for Designated Uses

Several parameters in 10 CSR 20-7.031 Table A—Criteria for Designated Uses were inconsistent with federal criteria. As a result, the criteria were revised to reflect the more protective federal criteria. The human health protection—fish consumption criteria affected include 2,4,6-trichlorophenol; n-nitrosopyrrolidene; 4-4'-DDE; 4-4'-DDD; and chloroform. The drinking water supply criteria affected include 2,3,7,8-TCDD (dioxin); trihalomethanes; dichlorobromomethane; and methylene chloride. The criteria affected for the protection of both human health—fish consumption and drinking water supply include 1,2,4,5-tetrachlorobenzene; pentachlorobenzene; 4-4'-DDT; bis (chloromethyl) ether; bromoform; chlorodibromomethane; tetrachloroethylene; and 1,2-dichloropropane.

These revised criteria will be slightly more stringent. Depending on the level of treatment presently employed at each facility, the level of additional treatment needed may vary on a case-by-case basis.

The number of facilities monitoring for the specific parameters listed above can be found in Table 13. For parameters not listed in the table, no record exists of any facility currently monitoring and reporting that specific parameter. In addition, some facilities may not be counted in Table 13 since these parameters may be monitored through Whole Effluent Toxicity (WET) tests and/or the general toxic organics test. Industrial facilities that discharge to municipal wastewater treatment plants may be required to go through the pretreatment process. The number of significant industrial users (SIGs) indirectly affected by the pretreatment program is unknown. A total of 15 facilities monitor and report one or more of the specific parameters listed in Table 13.

Table 13. Number of Facilities Monitoring for Select Parameters in Table A

Parameter	Public Facilities	Private Facilities	Total
2,4,6-trichlorophenol	0	4	4
2,3,7,8-tetrachlorodibenzo-p-dioxin [TCDD or dioxin]	0	2	2
methylene chloride	0	8	8
tetrachloroethylene	0	6	6
1,2-dichloroethylene	0	3	3
chloroform	0	9	9

Table B—Total Ammonia Nitrogen

Advances in research methods and increases in funding have allowed toxicologists to more accurately assess the toxicity of ammonia to aquatic life. EPA published new ammonia nitrogen standards in December 1999. Accordingly, MDNR proposes to adopt these changes to reflect improvements to the state's 1984 criteria. When comparing the "old" 1984 criteria to the "new" 1999 criteria, the new criteria are less stringent for the majority of the situations. The instances where the new criteria are more stringent include a few acute criteria for cold water fisheries, almost all acute criteria for limited warm water fisheries, a few chronic criteria for general warm water fisheries, and a few chronic criteria for limited warm water fisheries.

The degree of stringency of the ammonia nitrogen criteria depends on the type and chemistry of the water body receiving each individual discharge. The criteria are based on the pH and temperature of the receiving stream, which cannot be reasonably ascertained for each facility at this time. The number of facilities monitoring ammonia nitrogen can be found in Table 14. A total of 435 facilities monitor and report one or more of the forms of ammonia listed in Table 14.

Table 14. Number of Facilities Monitoring for Ammonia Nitrogen

Parameter	Public Facilities	Private Facilities	Total
NH3	12	13	25
NH3 N	1	1	2
NH3 T	177	243	420
NH4 T	2	1	3

Table C—Cold Water Fisheries

During the last revision several waters were either deleted from this table or revised in some fashion. No evidence could be found as to why six of those revisions occurred. As a result, those waters were returned to the original listing. Also four of those waters were still listed for cold water fisheries in Tables G (Lakes) & H (Streams), indicating the designation remained. Therefore, the short- and long-term consequence of this proposed change to the rule is that it will ensure proper protection of these waters until valid rationale justifies a change in the type of fishery category under which they're listed.

Table E—Outstanding State Resource Water

The addition of Bull Creek as an Outstanding State Resource Water will provide for the protection of water quality according to the antidegradation policy. Any new discharges into the designated section of the creek or into any tributaries that flow into that section of the creek will be required to first investigate if no-discharging options would be practical. If found that no-discharge options would not be practical or feasible, special effluent limits would need to be developed so that water quality is not allowed to degrade. Currently no permitted wastewater treatment plants, industrial discharges or general permits exist within the designated section of Bull Creek. Agricultural activities, except those regulated as Confined Animal Feeding Operations (CAFOs), will not be affected since they do not fall under the department's regulatory authority.

Table I—Biocriteria Reference Locations

Several changes are being proposed to the Biocriteria Reference Locations due to water withdrawal for irrigation, accessibility limitations, and refinement of selection processes. These revisions affect which reference locations will be assessed in order to gather more data and compare that data to other waters as part of the assessment process.

Miscellaneous typographical errors

Through a rulemaking process spelling, grammar, and typographical errors can occur without notice before a rule becomes effective. These simple mistakes are then corrected during the next revision to the rule. For example, the unit of measurement for volatile organics is currently listed as grams per liter (g/L) which was a typographical error. The correct unit of measurement is micrograms per liter (µg/L) and is being proposed as a change. Corrections made in this manner do not change the intent of the regulations.

10. Explanation of the risks to human health, public welfare or the environment addressed by the proposed rule.

Section 4 of this report explains some of the public risks that may exist should the environment not be protected by the new standards proposed by this rulemaking. Because the department is adopting federal standards, further information on risk assessment may be obtained by reviewing the administrative record created during EPA's development of their technical guidelines.

11. Identification of the sources of scientific information used in evaluating the risk and a summary of such information.

Section 2 and Appendix A of this report presents the information used in developing this proposed rule. Because the department is adopting federal standards, further information on risk assessment may be obtained by reviewing the administrative record created during EPA's development of their technical guidelines.

12. Description and impact statement of any uncertainties and assumptions made in conducting the analysis on the resulting risk estimate.

Because the department is adopting federal standards, further information on risk assessment may be obtained by reviewing the administrative record created during EPA's development of their technical guidelines. Providing information on uncertainties and assumptions would require an analysis of the preamble to the federal rule and it is uncertain that EPA documented all of the uncertainties and assumptions involved in their rule development.

13. Description of any significant countervailing risks that may be caused by the proposed rule.

The proposed designation of all classified waters in Tables G & H for WBCR will require a significant number of existing domestic wastewater treatment facilities to disinfect their effluent. Disinfection through chlorination can produce other harmful byproducts, such as trihalomethanes. Trihalomethanes are harmful to human health if consumed through drinking water supplies. Because discharges of treated effluent is prohibited above public drinking water supply intakes, this risk will only be posed where discharges are to losing streams that have a hydrologic connection to private wells and where sufficient treatment of the drinking water source is not provided. The department is unable to determine the number of instances where this risk may exist but will assess for this risk at the time a discharge permit is requested and may require alternative means to disinfection, such as ultraviolet light, to eliminate the potential for introducing trihalomethanes into groundwater or drinking waters supplies.

Chlorination may also result in residual chlorine that is harmful to aquatic life. Dechlorination of the effluent may be required to reduce the amount of total residual chlorine to safe levels.

Chlorine is also an explosive and dangerous chemical and requires safe handling and storage practices at the facility.

14. Identification of alternative regulatory approaches that will produce comparable human health, public welfare or environmental outcomes.

No other approaches were examined. Persons who believe another approach is available and can supported by sufficient rationale, are encouraged to submit an explanation of the alternative approach to the department during the public comment period on the proposed rule.

15. Information on how to provide comments on the Regulatory Impact Report during the 60-day period before the rule is provided to the Secretary of State.

The department will post a notice in the Jefferson City News Tribune that the Regulatory Impact Report will be available for public comment for a period of 60 days. The same notice will be posted on the department's web page at www.dnr.mo.gov/wpscd/wpcp/index.html. Persons wanting to comment on the RIR may submit them in writing to Ms. Marlene Kirchner, Commission Secretary, Missouri Clean Water Commission, Water Protection Program at P.O. Box 176, Jefferson City, Missouri 65102. Comments may also be faxed to (573) 526-1146. The deadline for submitting comments will be clearly explained in the newspaper advertisement and in the web page announcement.

16. Information on how to request a copy of comments or the web information about where the comments will be located.

Requests for copies of the comments received on this RIR may be sent to Ms. Marlene Kirchner, Commission Secretary, Missouri Clean Water Commission, Water Protection Program at P.O. Box 176, Jefferson City, Missouri 65102, or faxed to (573) 526-1146. Following the end of the comment period, comments on the report will be posted on the department's web page at www.dnr.mo.gov/wpscd/wpcp/index.html

Appendix A
Technical Documents and Data Used in Developing Proposed Rule

A. Peer-Reviewed Publications

1. Maidment D. (1993). Handbook of Hydrology. McGraw Hill.
2. Missouri Revised Statutes, Chapter 536 – Administrative Procedure and Review. http://www.moga.state.mo.us/STATUTES/C536.HTM
3. Rulemaking Manual. http://www.sos.mo.gov/adrules/manual/manual.asp
4. United States Environmental Protection Agency (1994). Interim Guidance on the Determination and Use of Water Effect Ratios (WERs) for Metals. http://yosemite.epa.gov/water/owrccatalog.nsf/0/513131cce81a689485256b0600723dd6?OpenDocument
5. United States Environmental Protection Agency (1999). 1999 Update of Ambient Water Quality Criteria for Ammonia. EPA-822-R-90-014. http://www.epa.gov/waterscience/standards/ammonia/99update.pdf
6. United States Environmental Protection Agency (2002). National Recommended Water Quality Criteria 2002. EPA-822-R-02-047. http://www.epa.gov/waterscience/pc/revcom.pdf
7. United States Environmental Protection Agency (1986). Ambient Water Quality Criteria for Bacteria—1986. EPA 440-5-84-002. http://www.epa.gov/waterscience/beaches/1986crit.pdf
8. United States Environmental Protection Agency (2002). Implementation Guidance for Ambient Water Quality Criteria for Bacteria—Draft. EPA 823-B-02-003. http://www.epa.gov/ost/standards/bacteria/bacteria.pdf

B. Non-Peer Reviewed Publications

1. ESP performed biological assessment and habitat studies for several watersheds.
2. Stream survey reports developed by department staff.
3. Water quality reports developed by department staff for lakes.

The Department used these reports to estimate the effect of new criteria and corresponding rule change on the environment and on the economic growth of the impacted industry or community.

C. Raw Data

1. Hydrologic data collected by department staff and external groups.
2. Water quality data collected by department staff and external groups.
3. Weather data collected by external groups.

Raw data were analyzed to detect any historic trends of a given pollutant concentration and the expected concentration after modification of criterion. Water quality data monitoring parameters, locations, and frequency must be adequate to gauge and assess the waters of the state. Any monitoring plan must be designed to meet the requirements of the proposed criteria.

Appendix B
Minutes from Stakeholder Meetings in 2001

Stakeholders Involvement Meeting for
2001 Water Quality Standards Review Process

April 3, 2001
Bennett Springs Conference Room
1738 E. Elm St.
Jefferson City, Missouri

Attendees:

Karen Bataille	MDC	John Lodderhose	MSD
Michael Bollinger	Ameren	John Madras	MDNR/DEQ/WPCP
Patrick Costello	EPA Region VII	Andy McCord	RCGA
Cindy DiStephano	MDC	Tom Sanders	City of Moberly
Jack Dutra	JD Information Services, Inc.	Darlene Schaben	MDNR/DEQ/WPCP
John Ford	MDNR/DEQ/WPCP	Don Torretti	MSD
Bob Hentges	MO Public Utility Alliance	Chris Zell	MDNR/DEQ/WPCP
Mike Irwin	MDNR/DEQ/WPCP	Leanna Zweig	MDC

John Madras went over the topics that are planned to be discussed at the different meetings. A package was mailed to interested parties and others, including a letter from MDNR to EPA describing how we plan to address the approvals they made as well as the disapproved items from previous standards makings and parts they felt inconsistent with the Clean Water Act.

The disapproved and inconsistent with the Clean Water Act items will be addressed first. EPA is bound to do federal rulemaking if the states don't change the rules to correct the deficiencies. Another topic to address is wood harvesting. The Clean Water Commission (CWC) directed staff to investigate potential rules under water pollution authorities that might address potential problems from chip mills. Discussions have turned into how to minimize impacts from intensive wood harvesting. Designation of metropolitan no-discharge streams will be another topic. Discussions have been held regarding Peruque Creek in St. Charles and Warren counties.

John mentioned that some other discussions raised were that some "guidelines" (Channel Modification and Sand & Gravel Guidelines) should be implemented into rules since they are required for water quality certifications. They would have to go through the formal rulemaking process.

The "Other Management Practices" topic is open-ended. Sand & Gravel Excavation Guidelines are expected to go through the CWC as well as the Land Reclamation Program Commission rulemaking process. We should end up with identical rules.

Today's topics include Metal's Criteria and Hardness Ranges. Chris Zell gave a presentation on Hardness Ranges. Chris started with some background on hardness ranges. Metals that hardness

has a good relationship to toxicity include cadmium, chromium, copper, lead, nickel, silver and zinc. All recalculations for metals are natural base e. Chris showed equation samples. Separate criteria are available for three hardness ranges. EPA feels streams are underprotected when hardness is near the lower end of the range. Some options to fix this might be: 1) maintain status quo but errors can range from 10-30%; 2) further define the hardness ranges; 3) incorporate the actual equations into the standards. The third option is the more favorable.

A suggestion was made on option 2 to add ranges but to use of the lowest number at the end of the range.

Mike Irwin gave a presentation on Aquatic Life Metals Criteria. This is designed to protect aquatic life from acute and chronic exposures to metals. There is EPA guidance on this issue. There are different ambient water quality criteria manuals for each metal. Calculations are done for each metal. EPA did the original calculations for Missouri criteria in 1988. Species deletions were made public during the 1989 hearing process and implemented into the Water Quality Standards. No negative comments were received. EPA stated in their letter that MDNR did not provide adequate documentation in their assumptions for recalculations. In the original EPA recalculations all genera of Order Cladocera (water fleas) were deleted. They are representative of other invertebrates not in the national database. *Ceriodaphnia* are used for whole effluent toxicity (WET) tests. So, there is a discrepancy. Staff agree that removal of Order Cladocera was not justified. Recalculation of aquatic life metals criteria would use Order Cladocera. Metals criteria would become more stringent.

John asked the group how they would like to see the water quality standards fixed. A question was raised about including an equation in the permit. Permits need to be as reasonable as possible. Currently, there are a couple that toggle with flow. Decisions will need to be made on how hardness will be looked at.

Another question was about the difference between the amount of time spent in permit writing and data collection versus just increasing hardness by equation. 1) See how streams are known (could make an educated guess) where there are proposed discharges or 2) look at the rule and say – any changes in metals criteria in a permit is a new water quality based limitation that allows three years to meet the standard. Three years of hardness data may show if that is the right number. There are options to carry this out. There can be a happy medium of tighter range of values and an equation.

It was suggested to check and see what other states use. It was stated that Illinois has a formula in their standards but was unsure of how it was incorporated into permits.

A suggestion was made to present this as a table or matrix with an equation at the top. Several liked that idea. The Secretary of State's office has suggested that we not have more tables but make it as a publication.

A question was brought up about mercury. All mercury in the database is highly suspect because of potential contamination. It is in the water in small concentrations. USGS has been measuring mercury in water for years. Accuracy of measuring mercury is still a question.

John said the changes to the metals criteria will be sent to everyone when they are ready.

There was a question of adding mussels to the database. EPA will check on this. There may be something already there that is equivalent.

John asked the group for suggestions for other topics that are not listed. It was noticed that sediment was not on the list. There is a statewide concern about the impacts of sediment. It was mentioned that monitoring would be expensive and complicated. Biological monitoring may be possible and the better method. The problem is that it's usually done after the fact.

The next meeting will be April 17 in Columbia at the USGS Columbia Environmental Research Center following the Water Quality Coordinating Committee meeting.

The plan is to submit as many standards' changes that are ready for hearing to the Clean Water Commission at the October Commission meeting. Proposed changes need to be completed by the end of June. Responses from the group will need to have a quick turnaround time.

Stakeholder Involvement Meetings for
2001 Missouri Water Quality Standards Review Process
April 17, 2001

USGS Columbia Environmental Research Center
Columbia, Missouri

Attendees:

John Hoke	MDNR/DEQ/WPCP	Ted Heisel	MO Coalition for the Env
Trent Stober	Midwest Env Consultants	Mike Irwin	MDNR/DEQ/WPCP
John Ford	MDNR/DEQ/WPCP	Chris Zell	MDNR/DEQ/WPCP
Andy McCord	RCGA	Tom Sanders	City of Moberly
Paul Andre	Dept. of Ag	Douglas Henry	City of Moberly
Jack Dutra	JD Information Services, Inc.	Mary West	City of Moberly
Buffy Skinner	St. Louis MSD	Michael Bollinger	Ameren
John Lodderhose	MSD	John Pozzo	Ameren
Kenny Duzan	MDNR/DEQ/PDWP	Patrick Costello	EPA Region 7
Cindy DiStephano	MDC	Cheryl Crisler	EPA Region 7
Rob Dobson	Sustainable Env Solutions	Cory Ridenhour	MO Forest Products Assn
Leanna Zweig	MDC	Dorris Bender	City of Independence
Tom Kruzan	Ozark RiverKeepers Network	Bob Steiert	EPA Region 7
Ken Midkiff	Sierra Club	Darlene Schaben	MDNR/DEQ/WPCP
Kevin Perry	REGFORM	John Madras	MDNR/DEQ/WPCP

Introductions were made.

Today's meeting covers Drinking Water Metals Criteria and Background Dissolved Oxygen Criteria.

Sedimentation issues raised at the first meeting may be a bigger issue than we can deal with in the short time that we have to put together the draft rule. But we need to figure out what we can do as a state to deal with those problems.

The rule writing process needs to be completed by July 4, 2001. Through these meetings we hope to find out the most important parts so the rule can be written well the first time.

There was a question about "Other Metals" on the schedule. With the Aquatic Life Metals Criteria recalculations being discussed, we wouldn't know what the metals criteria would be to be able to discuss it at this point. Other metals--lead, copper, cadmium, zinc—would be chronic criteria rather than acute. There was a concern whether WET tests will detect chronic toxicity levels.

Mike Irwin presented information on Drinking Water Metals Criteria. Drinking water supply is listed as a beneficial use in the water quality standards and designed to be protective of human health. Metals with numeric criteria for drinking water supply include antimony, arsenic, barium, beryllium, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel,

selenium, silver, thallium and zinc. The core issue is that national drinking water standards for metals are based on total metals and not dissolved (soluble metals). According to EPA, Missouri numeric criteria for drinking water metals could be underprotective. Staff concerns are that total metals include metals that are adsorbed with other solids. These solids and metals are removed in conventional surface drinking water treatment. Therefore, dissolved soluble metals are a primary concern for water suppliers.

Some options would be to maintain use of dissolved metals criteria, but this would not be equal to the national standard. Staff feel it a better representation of finished water and health risk. Another option is to switch to total metals criteria. This would be more protective and EPA would approve. Staff feel this would be less representative of finished water and health risk. EPA suggested why not retain both if there is concern of representation of risk to human health. It was felt that we would get a lot of water quality exceedences and would have to list waters in the 305(b) report and the 303(d) list, several of which wouldn't need to be there. This would be from source water.

It was mentioned that there is a need for clarification from EPA. Most metals are being regulated at the MCL level, based on Safe Drinking Water Act capability. MDNR is placing very stringent standards, developed by EPA criteria, to be protective of human health after drinking water treatment. Applying the very same standard in the stream without consideration of the fact that the water is going to receive drinking water treatment is not representative of the real human health risk. This seems inconsistent with the regulation developed in which MCLs were first derived. A question was asked if other states are using total metals utilizing MCL concentrations as their water quality standards. EPA will have to research this.

Some sludge is land applied when metals are removed through the treatment process. The sludge is regulated through the wastewater discharge permit and managed through the permit conditions.

In source waters there are concerns for other materials not taken out by conventional treatment but are taken out by advanced treatment, i.e., pesticides taken out by activated carbon. For this the source water would be held accountable for meeting the drinking water standard. Most drinking water sources use this method anyway.

It was asked if we have determined where metals are coming from. 90% are background from soil erosion/particles. Most of the improvements are done through soil conservation.

Chris Zell gave a presentation on Background Dissolved Oxygen Criteria. MDNR will look at the statewide dissolved oxygen criteria—fishery type and procedures--to develop site-specific criteria.

Factors that effect DO in stream oxygen are temperature, pressure, salinity, turbulence and biologic activity. Some of the MDNR concerns are that the present standard (5.0 mg/l) may not provide adequate protection; protection of unclassified waters; and flexible standard that allows site-specific criteria.

Some EPA concerns are that MDNR needs to provide detailed procedures for development of site specific criteria; potential to further impair a water body (more documentation is needed); and determination of natural background.

Cold water fisheries early life stage protection is December 1-March 31; cool water fisheries is March 1-June 30; warm water fisheries is April 1-August 31. This is a compromise between EPA guidelines for cool and warm water. Chris showed proposed criteria for chronic and acute values for cold, cool and warm water fisheries. This is based on daily average values.

It was suggested that copies of the presentation should be sent to the group. The presentations will later be on the MDNR web site.

Dissolved oxygen criteria are not applied to unclassified waters at this time but has been suggestions that it should. The proposal would be when flow is greater than 0.1 cfs is present, a criterion of 3.0 mg/l is to be achieved at all times. This is a suggested change by staff.

Chris went over the background dissolved oxygen issues—ecoregional differences, NPDES compliance, determination of minimally impacted sites, develop reference condition methodology and sampling. To come up with what is the natural background, we would have to define reference condition.

It was felt that an issue not addressed was releases to impoundments. Low dissolved oxygen conditions occur seasonally below every major reservoir in the state. Existing standard may not be met and clearly won't be met at 6 ppm for general warm water fisheries criteria. There was a question of the validity of the numbers in light of extensive fishery. Also, a question of the mechanics of what MDNR would do to small wastewater treatment plants up and down the river that discharge into the river below reservoirs. MDC did not think this to be a concern. Ameren is involved in a number of studies to start soon to look at biological impacts on fisheries and mussels water quality impacts. This may be placing more stringent criteria, and may be doing so without acknowledgement of a pre-existing condition on major reservoirs and severe impacts on many people. It was mentioned that we should recognize a pre-existing condition in complying with current standards before applying more stringent standards. EPA thought we could do this through site-specific studies.

MDNR uses the 1986 Gold Book for ambient water quality criteria for dissolved oxygen. MDNR is trying to set the overall framework for dissolved oxygen criteria for the state of Missouri and the process for development of site-specific criteria. Dams may not fit the mold. The main problem in establishing site-specific criteria is anthropogenic, the condition to use as a baseline. Consideration has been given to extending DO criteria up into classified waters with permanent flows. EPA's objected to the vagueness, lack of specificity, as to what constitutes natural background DO.

There was a suggestion to stick specifically to EPA disapproved issues because of the short timeframe. Budget is a problem when a UAA would be necessary. A UAA would be used to downgrade the use.

If a water is on the 303(d) list, there is an opportunity to do site-specific criteria. A process for doing site-specific criteria needs to be set up and put into rule. The public notice process would be used for establishing site-specific criteria, but the standard would not be changed.

There was a question about how site-specific criteria are different than variances. Site-specific criteria is not time limited. Variance is a time limit excursion. A cost benefit analysis for site-specific criteria could be done for DO, as well as other criteria. This would show up in antidegradation. Small town may have budget problems doing a cost benefit analysis.

EPA would approve a standard if it included a reference condition methodology defining natural background DO. EPA would like to see the Triennial Review process played out to fix the inconsistencies. The Water Quality Standards need refined with new studies and new findings.

There was a suggestion to look further than the EPA Gold Book. Another suggested that streams with low DO should be addressed now. Most monitoring is done on medium-sized and larger rivers with conditions of summer weather and low flow when oxygen level is lowest.

Chris asked for suggestions on procedures for how to determine site-specific criteria, how to sample, what is considered a reference condition, what is considered minimal impact. It was suggested to conduct studies to see what data we are dealing with then establish a monitoring program. Another suggestion was to do a paired approach with a candidate stream and one reference stream. Or, maybe do a lot of sampling over an ecoregion and develop data. It was decided to let EPA and MDNR look at it and bring back to the group what an appropriate background level would be.

In collecting DO data, it would be interesting to go back to streams done on QUAL2E modeling to see how well calibrated the model still is.

It was mentioned that in Georgia, in low DO conditions, a 10% reduction was allowed if they couldn't meet the DO from anthropogenic causes. Maybe after a reference condition was developed, a look at a 10% reduction could be looked at.

EPA has national data regarding protective aquatic life conditions.

MDNR needs data on small rivers for setting site-specific criteria. There are EPA approved methods for sampling of DO. EPA is checking with headquarters in Washington on acceptance of measuring metal's criteria at a wastewater treatment plant if it is removed through the treatment process.

Any other comments can be brought up at later meetings.

Stakeholder Involvement Meetings for
2001 Missouri Water Quality Standards Review Process
May 1, 2001

Bennett Springs Room, MDNR Conference Complex
Jefferson City, Missouri

Attendees:

Buffy Skinner	St. Louis MSD	Jerry Lawson	Marshall Municipal Util.
Bob Zeman	St. Louis MSD	Kent Spainhour	Chillicothe Municipal Util.
Ken Midkiff	Sierra Club	Bill Breeden	Chillicothe Municipal Util.
Bob Williamson	KCMO Water Services	Chris Zell	MDNR/DEQ/WPCP
James Gasich	Lake St. Louis Community Assn	John Hoke	MDNR/DEQ/WPCP
Rhonda Ferrett	City of Lake St. Louis	Trent Stober	Midwest Env Consultants
Michael Bollinger	Ameren	Terry Eaton	KC Power & Light
Scott Goodin	MDNR/DEQ/WPCP	Michael Katzman	KC Power & Light
John Ford	MDNR/DEQ/WPCP	Steve Taylor	MO Corn Growers Assn
Mike Irwin	MDNR/DEQ/WPCP	Loring Bullard	Watershed Committee
Kevin Perry	REGFORM	Steve VanRhein	Watershed Committee
Don Nikodim	MO Pork Producers	Ted Heisel	MO Coalition for the Env
Lee C. Redmond	MO Chapter Amer Fisheries Society	Leanna Zweig	MDC
Dorris Bender	City of Independence	Leslie Holloway	MO Farm Bureau
Doug Farrow	City of Moberly	Darlene Schaben	MDNR/DEQ/WPCP
Tom Sanders	City of Moberly	John Madras	MDNR/DEQ/WPCP
Mary West	City of Moberly		

Today's topics are Whole Body Contact Use and High Flow Exemptions.

Whole Body Contact Use – Chris Zell, WPCP
According to Section 101(a) of the Clean Water Act, all waters are intended to be fishable and swimmable. EPA disapproved that part of Missouri's Water Quality Standards because not all waters are listed for whole body contact. Chris read the definition of whole body contact use. Not all of Missouri's classified waters are expected to be used for whole body contact use recreation. Missouri would have to disinfect all waters of the state to reach the swimmable goal. If this were to happen Missouri would encourage use of non-chlorine disinfection methods such as ozone and ultra-violet radiation.

Alternatives would include designating all waters for whole body contact or conduct UAAs. There are 2000-2500 classified water body that are not designated as whole body contact use. This would involve adding disinfection limits to NPDES permits.

High Flow Exemptions – John Hoke, WPCP
High flow events may lead to water quality standards violations. Increased storm-water runoff may result in short-term increases in fecal coliform concentrations. To address this, the WQS contain an exemption of whole body contact waters from fecal coliform criteria during high flow events. This is located in the Missouri Water Quality Standards at 10 CSR 7.031(4)(c).

EPA requested that MDNR review, revise or eliminate the high flow exemption due to the broad and qualitative nature of the standard. Other states that have similar high flow exemptions were reviewed.

Options may include setting high flow exemption at 1-in-10 year flood flow level; setting high flow exemption at 1-in-25 year flood flow level; conduct a study of fecal coliform loading per ecoregion by watershed size to determine specific high flow exemption; or eliminate high flow exemption.

John Madras said an option to address this would be to adopt a blanket criteria for whole body contact throughout the state and do away with high flow exemption. This would cause problems for Missouri. About a ¼ of Missouri waters are protected for whole body contact.

EPA does not look favorable on the concept of having secondary contact recreation use. The problems are generally still there.

Most every stream in the state would be listed on the 303(d) list if Missouri would require the disinfection process. Any facility that discharges into a recreation or losing classified stream has disinfection limits in their permits. CAFOs are permitted as non-discharging facilities.

A comment was made that the amount of chlorine necessary for disinfection may create other problems for the surface drinking water plants downstream.

Some engineers feel that going to disinfection by ultraviolet light will require filtration to some extent. It may be easier to do a UAA for barges and currents.

The Missouri and Mississippi rivers were not included in the water quality standards due to safety reasons. It was suggested to sub-divide the Missouri and Mississippi rivers to designate for WBCR.

A question was raised about the realism of classifying the smaller streams as whole body contact. Chlorine disinfection by-products would have a more serious affect on these.

A question was raised about the handling of issues relating to nonpoint source and point source. The Nonpoint Source Management Plan is the major tool in dealing with those issues. Another question was how to handle the CSOs. EPA has draft guidance on CSOs.

There was discussion of liability/responsibility of informing the public of certain waters to not swim in. Are the standards numbers safe enough to not pose a risk? At times during low flows fecal coliform___ levels above 200 colonies per 100 ml have been observed.

A comment was made that there is really no way to handle or deal with nonpoint sources. There are a lot of streams that do have low flows with deep pools that people swim in.

Certain streams can be put off-limits for new small treatment plants because there are alternatives available for wastewater treatment. The process for getting on a "no-discharge" list is to have this advisory group make a suggestion to the Clean Water Commission.

To prevent nonpoint source pollution issues, best management practices are encouraged. Cost-share is available through SWCD, EQIP, etc., for fencing and alternate watering systems.

Enforcement action can be taken on point source water quality standard violations. Action on nonpoint source violations can be taken using long-term solutions and information/education. Point source and nonpoint source violations cannot be handled the same. With regard to how to do the UAA, there are protocol that can be set up that EPA can accept. If we end up with additional classifications for contact recreation, the process can be streamlined so that the UAA can be usable as a tool.

It was suggested that it may make sense to include dissolved oxygen in the UAA also.

It was suggested that the streams and lakes designated as whole body contact have discharges be limited to 200 daily max/100 monthly average, with a fall back of 400/200; secondary contact 1000/400 (current designation for whole body contact). Though this was thought to be too high, particularly on some high volume discharges in a low flow stream. Something may need added to allow for distinction for low flow discharge and high flow stream.

It's not only fecal coliform that is a concern but also nutrients released from package treatment plants that cause degradation of water quality.

There may need to be a better definition of what a whole body contact stream is. May need to include depth, water during normal flow, if standing pools during a number of months of the year, if over a certain diameter in depth, or numeric limits. The current definition is accepted by EPA.

It was asked if a county could place stricter regulations than MDNR. A lot of times a county will have to depend on whatever specific authority they have; whether it is through their ability to write health-based ordinances or others things the county has adopted.

EPA's goal is to have all waters fishable and swimmable. Under the Water Quality Standards, MDNR is allowed 3 years to implement new water quality based limits in permits (3 years from the time it gets in a permit). Most permits would be modified when they come up for renewal. The process could take 3-8 years.

If we are moving to doing UAAs, the state would need to set up guidance.

Missouri's recreation season is April 1 to October 31. Some areas do seasonal disinfection. The monitoring network will not increase. Currently, monitoring is being done by ESP, WPCP, Regional Offices, USGS, UMC and the permittee.

A question was asked about how would chlorine by-products be addressed and balanced. A study would need done to determine the use; then determine if that use is attainable.

It was mentioned that wetlands filtration seems to be promising and has not been mentioned yet. Columbia is using this on large municipal plants. Treatment is not only for fecal coliform but also for some of the nutrient problems. Most of the treatment is done by bacteria.

Atrazine is tested for quarterly in the public drinking water reservoirs.

A comment was made that the UAA seems to be a critical factor. We are faced with taking a federal mandate and utilizing that process to appropriately apply it on a site-specific or local basis. The state should pursue the process for systems that will be significant in their impact on point sources such as the Mississippi River. For smaller systems with localized impacts, the state should develop guidance for local municipalities for consultants to go by. It was suggested that an advisory committee be set up to follow-up on this.

The point of these discussions is to set criteria to protect the uses that are there. The criteria reflect what we expect from water bodies. Swimming criteria can pretty well be the same statewide but it could be tailored for when criteria would need to be met.

There was a question of the timeline for response to EPA. EPA is willing to work with states to figure out what is reasonable. The response letter to EPA included Missouri's plan to address the problems.

It was asked if other states have been successful. Wyoming, in Region 8, has developed UAA guidance for whole body contact.

The PowerPoint presentations will be sent out.

Stakeholder Involvement Meetings for
2001 Missouri Water Quality Standards Review Process
May 14, 2001

Bennett Springs Conference Room
1738 E. Elm St.
Jefferson City, Missouri

Attendees:

John Madras	MDNR/DEQ/WPCP	Roy Hengerson	Sierra Club
Darlene Schaben	MDNR/DEQ/WPCP	Roland Biehl	MSD
Mike Irwin	MDNR/DEQ/WPCP	Bruce Litzsinger	MSD
Patrick Costello	EPA Region 7	Steve Taylor	MO Corn Growers Assn.
Steve Rudloff	MO Limestone Producers Assn.	Leslie Holloway	MO Farm Bureau
Scott Goodin	MDNR/DEQ/WPCP	Bruce Boomer	Farmland Industries
Steve VanRhein	Watershed Comm of the Ozarks	Scott Harding	SCI Engineering
Loring Bullard	Watershed Comm of the Ozarks	Jerry Fick	
Michael Bollinger	Ameren	Bob Ziehmer	MO Dept. of Conservation
Lee Redmond	MO Chapter Amer Fisheries Society	Ken Midkiff	Sierra Club
Ted Heisel	MO Coalition for the Env	Cindy DiStephano	MO Dept. of Conservation
Trent Stober	Midwest Env Consultants	Leanna Zweig	MO Dept. of Conservation
Ray Bohlken	Capital Sand Company, Inc.	Paul Calvert	MO Dept. of Conservation
John Howland	MoDOT	Kevin Perry	REGFORM

Introductions were made.

Channel Modification Guidelines, John Madras
John gave a brief history of the Channel Modification Guidelines. The guidelines describe the different types of precautions that people are advised to take if they change a stream channel or make a modification to the channel. These were adopted by the Clean Water Commission in 1981. Considerations include protection of in-stream uses, to just protect water quality and particular concerns for special waters.

In the guidelines there is a list to follow, in order: bank protection measures, selective snagging, clearing and snagging, widening, deepening, by-pass channel development, and channel realignment. It is important to maintain the natural sinuosity of the channel. Channel realignment is usually the last option looked at.

A general guideline to use is 3:1 horizontal to vertical slope in conducting bank stabilization. Maintaining the grade of the bottom is important. The main use of the guideline is for section 404 permits. A question was asked about whom determines when it is necessary to do channel modifications. In the 404 permit process, the state does not have a role to decide if a particular project is necessary. The Corps of Engineers (COE) is tasked with deciding if a particular project is in the public's interest. The water quality certification is the way the state can add conditions to the permit to lessen the effects to protect water quality. Through the 404 permit process, the COE will initiate their 3-step process – avoidance, minimize and mitigation.

The goal for the guideline is to get feedback on a 20-year old document. If the guidelines would become a rule, the changes in the permitting process, from MDNR's point, would be more definitive on administering the guidelines. It would add surety to the process. This would allow the applicant to see beforehand what would be expected from MDNR. It was suggested to include punitive damages and a mitigation component to the guidelines. Another suggestion was to add topics for qualifying how good a stream is for mitigation ratios. It was mentioned that an initial assessment of streams would need to be done. These may be used by developers, engineers or an applicant as a starting point.

The topics need to be in the rule to evaluate the application may include—watershed size, aquatic species, diversity, riparian corridor, habitat.

It was asked if there could be a step above where snagging would be the least damaging; maybe a retention basin. There should be a presumption that channel modification will impact water quality and then if you meet certain criteria, that presumption could be removed.

One quandary is that some activities are regulated by COE and we have an opportunity to address them. It is an interesting concept to think that we won't be accommodating the effects of an unregulated activity in the permitting process.

The Channel Modification Guidelines show a guideline but now how it is to be done. Copies of the guideline were handed out. The COE & MDNR view the definition of channel modifications differently.

There is a frustration when an "after-the-fact" is issued. The damage has already been done.

With channel modifications there will be bank stabilization. It has been seen that riprap gets dumped for bank stabilization. It was requested to include that vegetation is the preferred method.

It was asked when widening would be appropriate. The most frequent instance would be where there is more water coming down the stream channel resulting in local flooding. Widening would be when a "shelf" is built so when water comes up, it has a wider cross sectional area. Then at lower flows it is back in the channel again. Deepening a channel is hard to maintain unless you are maintaining a grade.

The biocriteria standards are being planned for next year.

Site-specific issues could be included in this rulemaking if they were not too prescriptive. There could not be a one-size-fits-all. Maybe introduce a quality of topics, not quantity.

Sand & Gravel Guidelines, John Madras
Sand & Gravel Guidelines are relatively new. They were designed to protect water quality while allowing activities to occur. These were developed in 1993 with the development of the general

permit issued under section 404. The thought in developing the guideline was to look at a stream channel and see how we can get sand and gravel out of the riparian and stream environment with doing as little damage to water quality and the stream channel. John went over the 15 guidelines.

A lot of sand and gravel discussions have been on buffers. The main concern is protecting vegetation on the stream bank. Vegetation is the preferred buffer on stream banks. If there is too much gravel taken from the stream bed, other gravel comes from somewhere else, usually from the stream bank.

Spawning season was one of the guidelines that operators had a problem with. March through June is the busiest time for operators. They concluded that if buffers are maintained, work can continue. There are still small streams where this will not work. Most of the guidelines are common sense.

Options include to maintain guidance as guidance only or incorporate them as rules with opportunities for site-specific consideration.

The down side of putting these into rule is that there may be situations that come up later that do not fit these current guidelines.

It was asked about the COE jurisdiction. If an activity is mining gravel in the stream, they will need a COE permit.

It was mentioned that it seems that no one is enforcing that the guidelines are being followed. It was thought that the guidelines should be a rule so enforcement could be done. There was some discussion on enforcement.

At the last Land Reclamation Commission meeting, they suggested leaving them as guidelines and not adopting them into the land reclamation rules.

MDC has talked about plans to do a 3-phase study regarding operations following the guidelines, how successful they have been and have they had the desired effect.

Any comments can be sent to John Madras at any time.

Meeting adjourned. The next meeting will be held on June 5 in Jefferson City.

Stakeholder Involvement Meetings for
2001 Missouri Water Quality Standards Review Process
June 5, 2001

Bennett Springs Conference Room
1738 E. Elm St.
Jefferson City, Missouri

Attendees:

John Madras	MDNR/DEQ/WPCP	Clif Baumer	NRCS
Chris Zell	MDNR/DEQ/WPCP	Buffy Skinner	St. Louis MSD
Dorris Bender	City of Independence	Roy Hengerson	Sierra Club
C. Ted Turney	Kansas City Water Services Dept.	Michael Katzman	KC Power & Light
Richard Gaskin	Kansas City Water Services Dept.	Robert Brundage	PSF
Scott Goodin	MDNR/DEQ/WPCP	Bob Hentges	MO Public Utility Alliance
Leslie Holloway	MO Farm Bureau	John Howland	MoDOT
Ken Midkiff	Sierra Club	Scott Harding	SCI Engineering
Ted Heisel	MO Coalition for the Env	Clayton Bellamy	Associated Press
Darlene Schaben	MDNR/DEQ/WPCP	Jeff Halderman	KLIK
Joseph Hughes	Corps of Engineers, KC District	Kevin Perry	REGFORM
Sarah Kornblet	MO Coalition for the Env	Leanna Zweig	MDC
Chris Hamilton	NRCS	Mary West	City of Moberly
Pat Graham	NRCS	Patrick Costello	EPA Region 7

Introductions were made.

Agenda: Outstanding National Resource Waters; Mitigation Guidelines; & Wetlands Criteria.

Outstanding National Resource Waters, John Madras

There are 3 waters on this list of Outstanding National Resource Waters (ONRW). They include the Current River, Jacks Fork River and the Eleven Point River. The criteria of these waters apply to the entire watershed, not just the rivers. These are listed in Chapter 7 of the Clean Water Regulations.

EPA's concern is that there are allowed discharges and new permits in these waters if it is a publicly owned treatment works (POTW). Our options are to remove it and take no more applications for permits from public facilities or leave it in and let EPA take whatever action they deem appropriate.

Land application could be an option but the land is not suitable. In other states, there aren't as much land mass tied up in these categories of water. It was mentioned that redesignation or renaming may be an option. But lowering the protection would not work. It was suggested to remove the POTW clause.

It was also suggested that given that there are some discharges currently permitted, it might be possible to maintain a condition of no lowered water quality by a trading scheme. It was mentioned that trading represents a net reduction.

EPA supports removing the POTW clause.

Mitigation Guidelines, John Madras

The guidelines were written in cooperation with other agencies. A copy of the Mitigation Guidelines was passed out. The main goals of the guidelines are to carry out the state and federal responsibilities under the CWA and also to comply with Executive Orders, both state and federal, to see that we have no net loss of wetlands. The authorities for the guidelines are from the Clean Water Act, National Environmental Policy Act, Executive Orders & Missouri Clean Water Law.

The guidelines define mitigation and are in a thought process order: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time, and compensating impacts. The guidelines address different types of criteria: the kind of site it is, the type of wetland it is, the method used to complete the restoration or mitigation, the ratio that mitigation occurs. The guidelines show the current ratios used. The guidelines provide opportunity to use higher ratios when mitigation is delayed or when one project impacts another.

A suggestion was to include the criteria of identifying/quantifying quality streams. For example, perennial vs. intermittent, size of the watershed, flood protection/storage, aquatic species, adjacent riparian corridor, habitat value in a stream. A challenge is that there is no objective way of defining aquatic values that are being mitigated for.

There were some discussions on the definition of "in-lieu-fee" mitigation and how the state became involved with mitigation. It was mentioned that the COE mitigation ratios are different from what the state requires. MDNR is tried to set the guidelines to be in common agreement and get everyone on the same page.

The COE goal is no net loss of wetlands. The COE does not have a preset guideline on mitigation and what is required. Because of determinations they have to make, they do not have a predetermined mitigation policy with ratios. There was discussion on the COE issuing a provisional permit.

It was asked if there is a comfort level in establishing a ratio for specific projects. It is very helpful for an applicant to have a specific number. Any project that impacts more than $1/10^{th}$ of an acre requires mitigation. It was seconded that the guidelines should have a specific number rather than a range.

Some felt that the ratio range has been helpful with some projects and thought there was a background history on why the ranges are as they are.

It was asked who monitored to ensure that conditions are met and mitigation is occurring at the prescribed ratio. The applicant's consultant is required to provide an annual monitoring report for either site specific mitigation or for mitigation banks. The COE has also done site visits.

It was suggested that the mitigation guidelines address the concept of compensatory mitigation. In replacing a bridge in an agricultural area, the bank is eroding away at the abutment. The bridge and bank is armored to reduce erosion. This has been interpreted by MDNR as a stream impact. MDC feels that by using riprap for bank stabilization, the stream is being damaged further downstream. MDC recommends using vegetation. Federal guidelines will not allow MoDOT to use federal dollars to vegetate clear zones (from the shoulder to the barbwire fence). There may be things they can do to increase the roughness and dissipate energy at that location. It was mentioned that Steve Goff, St. Louis, did research on Fishpot Creek in similar situations.

More creedence would need to be given to in-lieu-fees if the guidelines are going to be a rule. There are programs available that could be taken advantage of.

It was asked if consideration is given to resources, where natural streams, open spaces or green spaces are quickly disappearing, in urban areas. It was thought that more technical information assigned to streams, qualifying/ quantifying their functions and providing some estimates on mitigative value. The St. Louis COE has already applied the higher ratios for out of watershed mitigation.

Wetlands Criteria, Chris Zell

Before 1993, the wetland criteria applied to wetlands adjacent to classified water bodies. In 1993, a clause was inserted into the WQS that said wetlands that are delineated according to the COE 1987 Delineation Manual were what we had so that actually expanded the number of wetlands we were giving protection to. The narrative criteria for the state are applicable to those wetlands delineated by the 1987 manual. EPA thought this was a reduction in protection. But after discussion with EPA, this is no longer an issue.

The state is now considering clarifying that wetlands are waters of the U.S. and waters of the state; and clarify that the narrative standards apply to wetlands. Other things to consider are use classifications for wetlands, consider what tier of the antidegradation policy to put these on, and numeric criteria.
It was thought that assigning numeric criteria would be difficult to do. The definition of a wetland is still a question, so applying criteria would be difficult. If you would choose to follow the antidegradation policy, you would have to know the current water quality condition.

It was suggested to add definitions of wooded wetland, scrub-shrub, etc. A lot of time is spent trying to figure out what the project actually is.

It was recommended to change the definition of a wetland so that it isn't tied to the federal definition. It was noted that if the COE's manual is used for identifying wetlands, they are not all waters of the U.S.

It was suggested the guidelines include a water dependency requirement like the COE regulations. Standards need to be set on how to avoid impacts to wetlands.

For the next meeting, if anyone has a particular question/issue they want to raise, let John know in order to form an agenda. Other issues raised at earlier meetings will be followed up on. The rule will be put together by gathering thoughts from meetings, EPA material and comments. A hearing should be held toward the end of the year.

All issues that EPA identified will be done first. Issues brought up at meetings, such as sedimentation and designation of Peruque Creek, will be taken up later.

The group will be informed when the draft rule comes out. Comments from the group should be sent to John as soon as possible.

It was suggested to set up a process for solving differences between the COE and MDNR on conflicting conditions, i.e., deed restrictions. Discussion on deed restrictions followed.

The next meeting will be held in Columbia on June 19.

Meeting adjourned.

Stakeholder Involvement Meetings for
2001 Missouri Water Quality Standards Review Process
June 19, 2001

USGS Columbia Environmental Research Center
4200 New Haven Rd.
Columbia, Missouri

Attendees:

Gayle Unruh	MoDOT	Patrick Costello	EPA Region 7
Scott Harding	SCI Engineering	Michael Katzman	KC Power & Light
Gerry Boehm	Brookside Env Services	Llona Weiss	MDNR/Office of the Director
Rhonda Ferrett	City of Lake St. Louis	Bob Ball	USDA, NRCS
Paul Schattgen	Resident, Lake St. Louis	Darlene Schaben	MDNR/DEQ/WPCP
Ray Grossmann	Eng & Facilities, Lake St. Louis	Dorris Bender	City of Independence
Leanna Zweig	MO Dept. of Conservation	Bob Zeman	MSD
Steve Fischer	MO Dept. of Conservation	Bob Hentges	MO Public Utility Alliance
Cindy DiStefano	MO Dept. of Conservation	Sachiko Fujimoto	MO Coalition for the Env
Todd Gemeinhardt	MO Dept. of Conservation	Ted Heisel	MO Coalition for the Env
Roy Hengerson	Sierra Club	Richard Gaskin	KC MO Water Services Dept.
Trent Stober	Midwest Env Consultants	Scott Goodin	MDNR/DEQ/WPCP
Steve Taylor	MO Corn Growers Assn	John Hoke	MDNR/DEQ/WPCP
		John Madras	MDNR/DEQ/WPCP

Introductions were made.

Agenda: Changes discussed at previous meetings; other changes for a later time; suggestions

Some of the changes include metals aquatic life criteria. According to EPA, we are currently in conflict with the methodology on how state's calculate criteria for metals. Recalculations were done. Copies of those were handed out. The problems were that the numbers were off from the actual calculations and the categories of hardness were under protective. The table at the top of the handout showed the recalculated metals. The lower box show how we arrived at those numbers. We are contemplating using the actual equations as part of the standards as opposed to the ranges. Recalculations were done according to procedures from EPA using what EPA refers to as the "Bruno Box." The criteria of the methodology for doing species recalculations and put it into a spreadsheet where you can add or delete certain species sensitive to these metals. This is based on a national database that headquarters developed for obtaining different criteria. If there are some problems, recalculations can be done. Let John know if you would like to see the actual calculations.

The main concern is that the numbers are generally lower than the current standards. It may pose some problem in writing permits or meeting permit limits as time goes on.

Order Cladocera is being added back in for EPA approval.

If there are problems arising from the numbers appearing too low, there is opportunity to adjust those on a site-specific basis. The handout, Derivation of Site Specific Criteria for Protection of Aquatic Life in Missouri, is one way available to address site-specific conditions where the standards may be more protective than needed. This is a draft document and comments are welcome.

With WBCR there has been criticism that of the waters in the water quality standards, Missouri only protects ¼ of them for swimming. At some point all waters will be fishable and swimmable. Waters that don't meet that criteria need to have a way to get through the permitting process so they don't have to meet a requirement that doesn't make sense. To do this, a Use Attainability Worksheet, adopted from another region, is being suggested. The permit applicant would fill out the worksheet. An example of the worksheet was handed out. EPA will be sending additional comments in writing. This protocol is being used elsewhere in the country as well as other protocol in other regions. This form is being used in Region 8. There will be a comment period both as an addition to the Standards and also when a permit is on public notice.

Other changes being contemplated are to incorporate several guidance documents—channel modification guidelines, aquatic resource mitigation guidelines, and the sand & gravel excavation guidelines. Edits will be made to these documents according to comments made. Whole Effluent Toxicity testing procedures are also being contemplated to include in the Standards at a later date. It looks like Missouri, while protecting toxicity, aquatic life was not being protected to the extent as in other states. Other rulemaking may include chip mills. There have been concerns regarding timber harvesting coming into Missouri. There will be future meetings on this topic.

Some of the technical qualifications will be added to the guidance to have something closer to the resource.
It was mentioned that there is nothing relating to accumulated effects of whole effluent toxicity. It would be good to see this in the standards. It was explained that there is no TMDL done unless an impairment is being remedied. A waste load allocation is done in advance. This process is already in place. The main concerns have been BOD and ammonia. This may show up more when we start looking at nutrient criteria.

There is a concern in Lake St. Louis regarding the nitrate level with accumulative effect of discharges to the streams. John explained how the whole effluent toxicity standards were arrived. Nutrients are addressed by looking to see if there are violations of narrative criteria.

It was mentioned that we need to see the regulations as reactive not proactive. We don't want to wait three years to see the negative effects.

It was asked if there is a way to lock out additional pemittees to prevent a stream from getting to the stage of impairment. No, because of wastewater and the classification of metropolitan no-discharge. Though, there is a possibility of issuing permit with lower limits.

We need to be able to prevent problems relating to timber harvesting before they become a problem. We still have questions on what could the standard be. The Chip Mill Committee recommended forest landowner education. It was mentioned that most problems don't get the attention or timely response they deserve.

One of the challenges in the guidelines, is to make the guidelines work with the 404 permits.

For dissolved oxygen criteria, there are two main questions. Some situations, like Buffalo Ditch in Poplar Bluff, are that there is no way a water body would hold 5 ppm dissolved oxygen in the summer. On the other hand, there are cold water fisheries but to support spawning, the standards represent those needs. We need to know what the resources are and what their needs are. Low dissolved oxygen for intermittent streams may also be addressed.

There was a question of whether to use total metals vs. dissolved metals. The state will use total metals like most other states. Iron and manganese are still a concern.

Ray Grossmann, Chairman of the Lake St. Louis Engineering and Facilities Committee, passed out information and talked about concerns in the Peruque Creek Watershed in St. Charles County.

The most significant threat to aquatic life in Missouri is erosion from construction and agriculture land. In the past, agriculture has been forced to be responsible. Urban runoff and stormwater construction have not caught up with agriculture erosion controls. Sediment enters streams and results in streams being void of aquatic life. Sediment is tied to stormwater runoff and precipitation. It is hard to get anyone held responsible for erosion control. In the future, MDC would like to work with MDNR to set up some numeric criteria for sediment in an effort to protect the streams and possibly assist in prosecuting responsible parties for extreme negligence for erosion control and BMPs. MDC will make available a presentation of the effect on aquatic life.

It was mentioned that the county could include a county ordinance for stormwater. The problem with Peruque Creek is that it is in several counties. The development of numeric criteria would allow states to have a better handle on sediment. Voluntary use of BMPs doesn't seem to be working.

It was asked if thought has been given to regulating contaminants in sediments or just quantity. Mainly in Missouri quantities of sediment is seen. These are dealt with in the permits.

If there are any other items or comments, please forward them to John Madras. John thanked everyone for sitting in on these meetings. Draft rules should go before the Clean Water Commission.

Appendix C
Minutes from Stakeholder Meetings in 2003

Stakeholder Meeting to Discuss Issue of Whole Body Contact Use Designation
October 24, 2003
2:30 – 4:30 p.m., Jefferson City, Missouri

Participants:

Robert Brundage, Missouri Ag Industries Council
Gale Carlson, Missouri Department of Health and Senior Services
Patrick Costello, EPA Region 7
Aimee Davenport, MDNR Water Protection and Soil Conservation Division
Chad Davis, Trenton Municipal Utilities
Cindy DiStefano, Missouri Department of Conservation
Ted Heisel, Missouri Coalition for the Environment
Bob Hentges, MPUA
Leslie Holloway, Missouri Farm Bureau
Jim Hull, MDNR Water Protection and Soil Conservation Division
Jane Lale, MDNR, Division of State Parks
Mary Lappin, City of Kansas City
Jim Mellem, City of Kansas City
Ken Midkiff, Sierra Club (by phone for a brief time)
Becky Shannon (facilitator), MDNR Water Protection and Soil Conservation Division
Amy Randles, Missouri Attorney General's Office
Kris Ricketts, MDNR Water Protection and Soil Conservation Division
Buffy Skinner, St. Louis Metropolitan Sewer District
Steve Taylor, Environmental Resources Coalition
Mary West, City of Moberly
Jim Yancey, MDNR, Division of State Parks

Whole Body Contact Recreation Discussion:

In Sept of 2000, EPA asked for Missouri's water quality standards to be revised. Whole Body Contact Recreation (WBCR) use designation was an issue identified. MDNR looked at ways to accomplish the recommendation of designating all waters for WBCR or documenting through a UAA that the use cannot be attained. A Memorandum of Understanding with an approach for addressing the issue was proposed. The Missouri Coalition for the Environment filed suit against EPA; one issue of the 16 was to compel EPA to designate all of Missouri's waters for WBCR use. When last discussed with the Missouri Clean Water Commission, the Commission directed staff to get with stakeholders to find an acceptable approach.

Acting as facilitator, Becky Shannon set up the parameters for a spectrum of alternatives and asked participants to suggest alternatives to the two ends of the spectrum identified. The following discussion addresses each end of the spectrum and the various suggestions that were

offered. In some cases, different components of each suggestion are split out here, as compared to how they were discussed in the meeting, to be clearer.

During the discussion, a number of related issues were brought up. These were noted and are included in a list at the end of this summary. An essential issue listed with direct impact on the discussion of use designation was what constitutes an acceptable UAA.

One end of the Spectrum:

1. **Immediately designate all waters.**

The other end of the spectrum:

2. **Draft MOU as proposed to CWC.**
   - Evaluate all waters on a non-prioritized schedule.
   - (Un)Designate or do UAA for each of the waters over a period of six years
   - Default is to designate all unevaluated waters in 2009.

   (Pat Costello, EPA, says roughly 90% of the classified water bodies in this state are not designated. Ted H. indicated 403 of 4205 reaches are designated. Approximately 3700 are not designated.)

   It was pointed out that there were other options that could be considered "the other end of the spectrum" from immediately designating. For example, **"Do Nothing"** could be considered an alternative.

Alternatives suggested by participants:

3. **Prioritize waters.**
   CHALLENGES: How will waters be prioritized?
   Some suggested prioritization methods:
   - High population/urban streams,
   - Use historic water quality data and/or stream characteristics,
   - Access points,
   - Location of point source discharges,
   - Greatest Public Use (public survey data available??), and/or
   - Nature of the point source (municipal vs. industrial, volume of discharge relative to receiving water).

4. **Shorten the time frame for designation.**
   CHALLENGES:
   - Shortage of resources in MDNR or elsewhere (resources include money, data, people).
   - Complexity of documentation.
   - Time to acquire data that's not readily available.

5. **Announce that waters will be designated on a particular date, providing anyone an opportunity to "petition" to have waters not designated.**
   CHALLENGES:
   - What would petition include?

- Same resource issues as in alternative number four.
- Would result in many appeals to CWC (this could be said of all options).

Additionally there was discussion of:

Should evaluation of waters and UAA be done by MDNR or the entity desiring the removal of the use?

CHALLENGES:
- Resource challenges for all involved.
- MDNR will need to review submittals regardless.
- Quality assurance of data/submittal needed.

Related Issues Raised by Participants:

- Which waters will be affected by designation—classified only or all waters of the state (including unclassified)?
- Some classified waters aren't apparently impacted by point sources.
- Evaluating all waters is not doable by the state.
- Ability to prove the documentation depends on what documentation is required—what's in UAA?
- Where do agricultural and other non-point sources come in? Point sources are low hanging fruit.
- What about multiple discharge sources in one stream reach?
- Areas with multiple sources need not involve all sources in UAA.
- UAA may result in identification of sources thereby offending people.
- All use changes are by rule. Public notice will be done.
- What types of waters were in the approximately 1400 UAA's in Kansas?
- Tiered approach to WBCR is an option—primary contact, secondary contact.
- Fecal coliform versus *E. coli* as bacterial indicator.
- High flow exemption needs to be addressed. Is there or isn't there an exemption now and in future?
- Examples of approved UAA's from other states would be helpful regarding use of economic factors to remove designated use.
- Plan an implementation schedule in a manner appropriate for the location.
- Consider watershed approach in implementation schedule (point sources and nonpoint sources).
- Non-human sources of bacteria and the impact on in-stream bacteria level (as an implementation issue, implications in terms of TMDL if water is impaired).

Becky asked participants to send her preferences for a date for a follow-up meeting, choosing among November 3, 4, 5 and 6th. The meeting adjourned at 4:33 p.m.

Stakeholder Meeting to Discuss Issue of Whole Body Contact Use Designation
November 4, 2003
Jefferson City, Missouri

Participants:

Ali Almai, City of Kansas City Water Services
Paul Anderson, MDNR Water Protection and Soil Conservation Division
John Dieter, City of Kansas City Water Services
Dave Dillon, Missouri Department of Agriculture
Cindy DiStefano, Missouri Department of Conservation
Rochelle Kuster, Missouri Department of Health and Senior Services
Jane Lale, MDNR, Division of State Parks
Becky Shannon (facilitator), MDNR Water Protection and Soil Conservation Division
Amy Randles, Missouri Attorney General's Office
Kris Ricketts, MDNR Water Protection and Soil Conservation Division
Gale Roberts, MDNR Southwest Regional Office
Buffy Skinner, St. Louis Metropolitan Sewer District
Steve Taylor, Environmental Resources Coalition
Mary West, City of Moberly
Jim Yancey, MDNR, Division of State Parks

Issues:

- Classified only or all (including unclassified).
- Some classified waters aren't apparently impacted by point sources.
- Evaluating all waters is not doable by state.
- Ability to prove the documentation depends on what documentation is required. What's in UAA?
- Where do Ag and other nonpoint sources come in? Point sources are low hanging fruit.
- What about multiple discharge sources?
- Areas with multiple sources need not involve all sources in UAA.
- UAA may result in identification of sources offending people.
- All use changes are by rule. Public notice will be done.

Defining UAA comes first.

- Shorter time.
- Documentation provided by those who are requesting the removal or at least no expectation that the state evaluate all waters.
- Prioritize the waters, then MDNR does the evaluation.
  - Costello threw out some schemes for how to do so (i.e, location of point source discharges).
  - Ted said his perspective was to look at streams with the greatest public use or based on population, etc.
  - Jim? said nature of point source, like volume relative to stream.
  - Jim Y. said use existing or historic water quality, socio-economic uses. Is there public survey data available?
  - Cindy said public access points.

- Mary West asked where the Ag sources are considered?
- Bob Hentges asked why we don't public notice the intent to designate all waters as WBC and allow "petitioners" to provide documentation. Request would include a schedule.

What about streams coming from out-of-state which may have fecal coliform contamination? Becky said each state is responsible for ensuring all discharges meet their own water quality standards.

Considering shortening the time frame, Dave Dillon said one of the drafts to EPA said the target of how many UAA's would be done per year, and that should stay on the table.
He also talked about the MOU with EPA in terms of bringing in various governmental and quasi-governmental agencies to help work though the UAA's. Will EPA give us time to do this? Ag views this as extending to non-point sources, not just point sources. Wants a workable process to phase in these protections.

Ali said don't we need a fair amount of data. Dave said there are certain streams that clearly aren't WBC candidates. Becky said there are a few opportunities.

Becky clarified that the consequence of having a WBC standard is that each point source would have a bacterial limit [for effluent]. In-stream for some.

John said KC is working on a long-term control plan.
This gets complicated when more than one agency has to make decisions. How quickly could it be physically performed? What are kind of criteria for prioritizing the waters?

Applies to classified waters only.
Assumption is that if it has enough water in it, it's probably whole body contact. Although, that doesn't hold true for Missouri River.

Dave was worried about mission creep to impaired waters designation for all waters.

Jim Y. asked if WBC set by federal rule, would removals from the list have to be a federal rule. Amy didn't know, but said it wouldn't be surprising. Dave thought it may be that EPA would force MDNR to implement it.

Becky got back to prioritization criteria.

- High residential population/urban streams.
- Use historic water quality data and/or stream characteristics-flow data.
- Access points and other known recreational spots, greatest public use.
- Location of point source discharges (related to the whole risk issue, or whether or not the stream was composed of effluent).
- Nature of the point source (municipal vs. industrial, volume of discharge relative to receiving water).

What about developing a matrix weighting the criteria variables?

Need to prioritize those waters with the highest risks.

Gale asked if we could separate human sewage by natural (animal based?) bacteria. Becky said no, but they are looking at *E. Coli*, not just the broader category of fecal coliforms.

Dave wanted it not designated as a blanket fix, and to not have everyone spend money "fixing" it.

Becky's going to look at storm water runoff.

Becky said historical data is an issue. Jim said, isn't prioritization a form of UAA?
Yes, then wouldn't we take off the big rivers?

Gale suggested we designate by ecoregion, designating Ozarks first, then medium, then big rivers.

Becky said we could also look at designating perennial streams, class C streams, etc.

Amy asked if there is a schedule and method of prioritization that could be used.

Design

Designate All Waters Now	Designate high priority waters right away, others later.	Unprioritized schedule for designation over 6 years

Implementation (i.e. when you have to disinfect)

Amy said try tier approach:
1. High risk, simple UAA
2. High risk, complex UAA
3. Low risk

Risk definition based on high population, high use, effluent dominated streams

Cindy/Becky discussed draft UAA. They talked about what factors need to be considered, not what the specific criteria for. Cindy suggested we finalize the UAA, to allow people to get started on it.

Dave said the MOU was sent up to remove those waters from consideration that can't be WBC.

Amy said the problem is that when a stream is designated, it could be tested, found to not meet fecal or E. coli, then hit the 303(d) list. It can then be delisted based on further studies, but every step is in the rulemaking process.

In general, the group is okay with the idea of a prioritized approach to designation, and is okay with the utilization of population, use and effluent dominated factors, understanding that entities have an opportunity or schedule in which to provide an UAA before they are required to implement. Where there's a complex UAA, make sure UAA procedure is available.

Schedule?

Expired permits. Fear is that the permits may come out in the next few months. If they'd been renewed when they should have been, they'd have until 2007 to implement. Now they'll have to implement immediately.

Question in terms of high population: Use the same criteria for this as for Phase II? No, the cutoff for Phase II was 1,000 per square mile or 10,000 total population.

December 11 meeting with Commission. Joint w/ HWP in the morning, only CWC in the afternoon.